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Wednesday, January 2nd, 1924.

EGGS

THE OFFICIAL ORGAN OF THE SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

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Vol. IX. No. 1. Copyright.

Edited by TOM NEWMAN.
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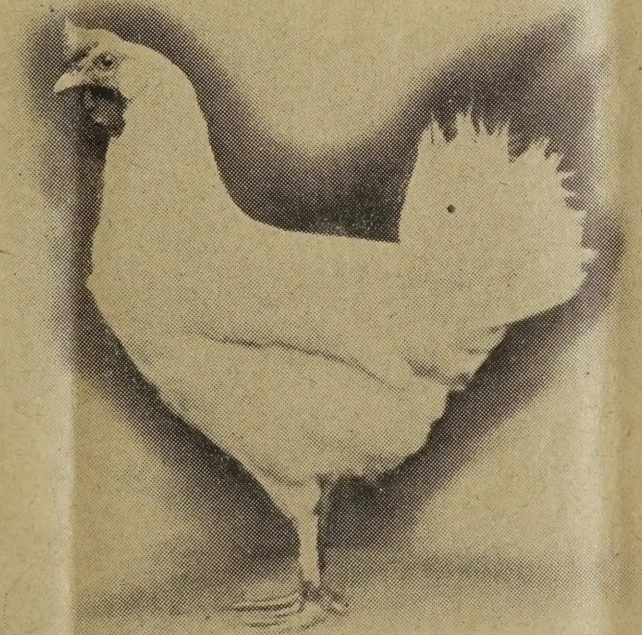

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EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, January 2nd, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

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All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

INCUBATION (*Continued*).

COOLING.—Two lines of an old song occur to us, with which many of our readers may be acquainted:

> "And I said to the man as commanded the show;
> Come hatch me a chicken like Billy Barlow."

Whether Mr. Barlow was the inventor of the first incubator or not, we cannot say, but it is certain that no incubator has been placed on the market since the Hearson which has not advised that the eggs should be cooled. Some of them say, "The hen comes off her nest every day to cool the eggs"; others speak of it as "a wise provision of nature." But is it so? Are we not endowing Biddy with reasoning powers when we make such a statement? Would it not be more reasonable to suppose that she merely comes off to feed, and that the cooling is but a coincidence? Is there any definite evidence that the embryo derives any benefit from this cooling? It is possible to produce evidence that it does not, but none is available to prove that it does. Look at the advice to cool for twenty minutes during the last week of incubation. Should we take a day-old chick from the brooder at a temperature of, say, 85 degrees, and subject it to one of, say, 50 for twenty minutes and expect it to live? Of course we shouldn't; then why, in the name of commonsense, take an egg with a growing embryo whose development depends to a great deal on an equable temperature from one of 103 degrees and plunge it into one of 50 degrees—more often than not lower than this? If we believe it is a case of airing and not cooling, then is it logical to close down the incubator on the nineteenth day, when the embryo requires more oxygen than it does a week previously? In 1917 we wrote an article questioning the value of cooling, the following year experiments were made with some 3,000 eggs at one of the American colleges—the uncooled eggs gave the better hatching results, and there was a lower mortality up to six weeks old. In the case of a badly-ventilated incubator the air may become stagnant, then cooling, or rather airing, would be of some advantage.

TEMPERATURE.—The incubator room itself should be well constructed. A cellar answers very well, but failing that the room should be double walled, and packed with some material such as sawdust, an earth floor is to be preferred to a wooden one. Great attention should be paid to the roof. One of the best incubator rooms we were ever in had a thatched roof. The ideal temperature to aim at is 65 degrees Fahr. If this is maintained there will be very little trouble with the moisture problem. The lower the temperature of the incubator room, the more necessary it is to supply moisture, as warm air carries more than cold. In a tank machine with a temperature of 55 to 65 degrees it would not be necessary, and perhaps not advisable, to supply moisture until the tenth day; with a lower temperature it would be advisable to supply it from the first. We do not supply moisture to the eggs, it is placed in the incubator to prevent the too rapid evaporation of the egg. In a tank machine sand or moss litter, saturated with moisture, gives a better evaporating surface than water alone. The room temperature and the question of moisture are very closely allied.

INCUBATOR TEMPERATURE. — Experiments have proved that if you take eggs from under a sitting hen after the first week and place them in an incubator you get improved results; reverse the process, and take the eggs from the incubator and place them under the sitting hen, and you can get no better results. This is important, because it narrows the issue. It cannot be a matter of oxygen, because as we have shown there is more oxygen in the incubator than under the hen, and at this stage the embryo would require very little indeed. It is, of course, possible that the evaporation of moisture is better controlled under the hen than in the incubator, but the real point seems to be one of temperature, and there is little doubt that a very large number of germs perish or are so weakened that they have either not the vitality to develop or hatch, because of too

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low a temperature during the first two or three days of incubation. The inside temperature of an egg under a sitting hen at the end of the first 24 hours is 100 degrees; at the end of a week 101 degrees; the increase would be due to the animal heat from the developing embryo. In an incubator with a suspended thermometer registering 103 degrees Fahr. the inside temperature of the egg at the end of 24 hours is only 97 degrees. The best results we have obtained to date are with a temperature of 102 to 102½ degrees, with the bulb of the thermometer resting on a fertile egg in the outside (front row). One must, however, take into account the size of the incubator. In a 50 size this temperature would be a little too high; from 100 to 150 a temperature of 102, with the thermometer in this position would be sufficient; with the larger machines 102½ would be better, and no great harm would occur at 103. We are not, of course, speaking of the Mammoths.

TURNING.—Some years ago Mr. Godfrey sent us particulars of his experiments of hatching without turning the eggs. He used about 1,000 eggs, and the hatching results were quite good, but not one of the chicks lived to be more than six weeks old, and in every case where a post-mortem was made it was found there was unabsorbed yolk. It is said that if the egg is not turned the germ will stick to the shell, but this is not so, except in a few cases where the evaporation of moisture has been excessive, the real value of turning is to permit an even distribution of heat over the whole body of the egg. American experiments have proved that the more frequent the turning the better the hatch and the stronger the chick. A comparative test we made with six incubators, turning four times a day, and six only two, gave much better hatches over a whole season to eggs most frequently turned. In neither case was there any cooling.

Everyone will appreciate the necessity of testing thermometers before starting the hatching season. We are often asked for an address to send them to for testing. They should be sent to the

Director,
National Physical Laboratory,
Teddington, Middlesex.

The charge, we believe, is 2s. 9d., and this includes postage, etc.

In conclusion, it should be understood how necessary it is for each operator to understand his own environment. As we have said before, the method which has succeeded with Jones in a cellar may not be equally successful with Smith in an attic. There are few important points to keep in mind:—First the eggs, then their storage.

Every post we are asked how long eggs can be stored for incubation. We have heard of eggs being stored in a damp cellar and hatched after three months, but will not vouch for the story. An egg steadily deteriorates every day after it has been laid; it is not a question of how long they can be kept for incubation. The longer they are kept, the less likely will they be to hatch, and the more likely will the chicks be to be weakly. If they must be kept, they should be stored in bran, at a temperature of as near 50 degrees as possible.

It is a grave mistake to incubate thin-shelled, misshapen or rough-shelled, abnormally large or small eggs.

In conclusion, we would urge on our readers the importance of removing the chicks from the nursery drawer of the hot-air machines as quickly as possible. Between the temperature of the egg chamber and that of the nursery drawer there is a difference of as much as 20 degrees, and chicks remaining in the drawer too long often become chilled, and develop symptoms which are frequently mistaken for Bacillary White Diarrhoea.

We venture, too, to add a word of warning to vendors of day-old chicks. This is more particularly addressed to the novice: Buy chick boxes of good quality, the "cheap and nasty" sort will cause endless trouble between you and your clients. Do not send the chicks in the box under the impression that the heat they generate, and the little piece of flannel over their heads, will be sufficient protection from the cold; it will not, they arrive chilled, and again develop symptoms which are mistaken by the uninitiated for B.W.D., and your stock acquires a bad reputation—undeserved, it is true, but one which might have been avoided. Make a little nest of soft hay, and they will then be warm enough and will not crush.

IMPORTANT NOTICE.

INSPECTION AND REGISTRATION OF FARMS.

We have been advised that the Ministry of Agriculture is prepared to carry out, at the request of the S.P.B.A. for an experimental period of one year, commencing January 1st, the inspection of the plant, stock and methods of poultry management of all members throughout the whole of England, Scotland and Wales, who wish their names to appear in the Association's Register of approved breeders.

It is to be perfectly understood that the responsibility for granting or with-holding of certificates for the Registration will rest with the Association. No name will be added to the Register except on the recommendation of the Ministry's Inspector. The responsibility of the Ministry will be confined to the work of inspection and incidental duties relating thereto.

Will our members who desire to have their plant and stock inspected and registered kindly communicate with us without delay, so that the necessary arrangements can be made. The names of all approved farms will be published in "Eggs," and in the Register, and a certificate will be granted by the S.P.B.A. A list of approved farms will be sent to the Ministry of Agriculture.

Southern California v. England.

By FRED FIELDING.

(*Continued from Page 439, Vol. VIII.*)

I was discussing this matter a few weeks ago with a poultry expert. "A man," he said, "to be successful in the chicken business must cull and cull again, and he must then set out and cull until it hurts."

I have mentioned that this man was a poultry expert, and, like most of that ilk he was talking about what the other fellow should do; he had no birds of his own. I quite agree that one should cull regularly, and even drastically in some cases, but after all this question of culling is considerably overdrawn. I am speaking only from the egg-maker's point of view, with the breeder it is another question.

When in New Zealand I compared notes with Mr. Mumby on this culling question, and he told me that he had the previous year gone over his flock and taken out all the culls. He placed them in a separate house, intending to market them, but it so happened that he hadn't the time. To his surprise he found that within a few weeks the culls (?) were laying heavier than those he had retained. I asked him "Were they **real culls,** or only birds that were **not laying** at that moment?" and he said that they were to all appearances wasters.

This has proved to be the case over and over again with culled birds in this vicinity, and when culling for the chicken-ranches here we have this fact in mind, and only throw out the absolute wasters, with the invariable result that the temporary non-layers comes back into lay again on account of the flock being so much smaller.

It is obvious then that most large commercial flocks are overcrowded, the tendency on all large ranches is in this direction. I have never yet seen the perfectly-equipped 10,000-egg ranch.

The best and safest, and also the most profitable system is to have spare laying houses, and the poultryman may be instructed to pick up all the birds which "crack-up" during the laying period, and throw them into this spare house. The real wasters are very obvious, and can be destroyed on the spot. I do not advocate the "doctoring" of the commercial hen, and this is the best and simplest way to deal with the fowl which is slightly "off colour."

If a whole flock of fowls is sick, of course it is imperative that something should be done to bring them round, and the best way to administer "dope" is through the drinking water. The reason is, that a sick fowl drinks more and eats less than when in its normal state. If you "doctor" the mash the healthy bird will get a larger share of the "dope," whilst the fowl you aim to reach will get very little—perhaps none at all.

The main objective, however, should be to induce the birds to eat. If the sick fowl is not taking food of some description she is soon too low to recover.

If the spare house I have advocated be adopted, and all the sick birds placed into it, they can then be fed a semi-liquid mash, which will be both food and drink; **water must be kept away from them.** The sick birds **will drink**, and by drinking the liquid will soon put on flesh and the worst is then over.

A good mash I might suggest for this purpose is boiled oatmeal with skimmed or diluted whole-milk.

By this system fowls which would have been a total loss may be turned into a satisfactory profit.

The best type of laying house for commercial egg farming depends largely upon the geographical position of the site. This is also an individual matter—most of us have ideas of own own. For the North of England I would prefer the "Lancashire type" of house, but it should be 16 ft. deep and have boarded floors. There should be a division three-quarters across the house from roof to floor every 12 ft. The house should be raised at least one foot from the ground.

For the South I like the "Hanson type" of house, 16 ft. deep with two inches air space under the eaves at the back—the full length of the house. A Hanson type house, 16 ft. wide, would lack ventilation without the latter addition.

Every laying house should have a feed room at the entrance end of the house to store grain, and dry mash, grit, etc.

A big saving of labour is to buy the dry mash already mixed. I believe any miller would mix your formula providing you buy in quantities large enough to make it worth his while. The feed dealers here have established this custom, and have machinery installed for this purpose. Of course, they each have their own prepared mashes, but they will also mix your own formula, which they can usually supply in two-ton lots at a lower rate than we can buy the ingredients and mix our own.

Below are a couple of mashes, compiled by two different vendors. They will be interesting as a comparison with the English formulas :—

No. 1.—PRICE $2.74.

	lbs.
Bran	640
Shorts	400
*Middlings	200
Corn Meal	350
Ground Barley	200
Rice Polish	95
Meat Scrap (60 p.c. protein)	250
Green Bone Meal	100
Linseed Meal	100
Charcoal	50
Soya Bean Meal	50
Salt	10
Total	2,445

No. 2.—PRICE $2.50.

	lbs.
Bran	900
Corn Meal	434
Middlings	200
Soya Bean Meal	100
Ground Oats	300
Meat Scrap (60 p.c. protein)	250
Linseed Meal	50
Green Bone	100
Charcoal	50
Salt	16
Total ...	2,400

* Middlings are low-grade flour; not up to milling standard.

But, to return to the mammoth poultry farm, I consider the 50,000 poultry farm—that is, a **complete farm**—to be an impractical proposition. The late Dr. Phillips had such an idea in view, and expressed the utmost confidence that he could carry it on successfully. When I enquired if he could get reliable labour to work the place he was so positive that he could that I let the matter drop, but when I discussed this labour question later with his poultryman I found that the good Dr. did not even understand the local labour conditions.

Theoretically a 50,000 poultry farm can be carried on with forty men if properly organised. Any person with average intelligence can take a pencil and paper and figure the whole thing out to advantage; but this sort of thing is equivalent to mating up one's breeding pens in the office.

To start with we want forty men—that's easy. But it is not so easy to get the right kind of men as any large egg-farmer can tell you to his cost. Most of these larger plants have three gangs on hand all the time. One gang working, one leaving, and one coming.

The fact must not be overlooked that work on a poultry farm for the employee is very irksome, and unless he is very highly remunerated he will not stay.

Again, there is always the shirker. I quite agree that he is not nearly so much in evidence as our British yellow Press would have us believe, but he is there just the same, and to have him in charge of live-stock of any description is a serious matter. As a rule he is so cute that quite a lot of damage may be done before he is discovered.

In conclusion, there is a much better chance here for the 50,000 farm owing to its being a more congenial climate, the farms being more compact and very high wages offered to the workers, but no one has yet given the question any consideration.

Every ranch over 20,000 has been a failure.

The only system which has proved a success is that adopted by Mr. Weeks in Los Angeles. He purchased a tract of land and colonised it, thus influencing only those who had a real interest in the business. He sold this land in one and two-acre plots only on the condition that they work under his system. The colonists buy and market co-operatively, and every unit is a one-man unit, and every man his own boss. Help and advice is given to all gratis, and **there are no failures.** Mr. Weeks claims that no man is a success unless he can make two dollars a hen per year clear profit. All birds are kept on the intensive system, but are supplied with an abundance of green food.

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

AT CHELTENHAM.

On the 19th ult. I paid a visit to our Cheltenham Branch, and lectured to a very keen audience, taking as my subject "From Shell to Maturity." I am afraid I gave a promise that this lecture should be published in "Eggs," and I am loath to break my word; but I am so pressed for space, that I am afraid I shall have to do so, as there is much more important matter to go forward.

Mr. E. Bacon presided, and was supported by Mr. Evans, Mr. Johnson, and Mr. L. G. Price, the County Poultry Instructor. Thanks to Mr. Greenway, the energetic Secretary, and to the splendid support he is receiving, the Cheltenham Branch is going strong. It was a great pleasure to me to find everyone so keen. In Mr. Price Gloucestershire has a most enthusiastic and capable instructor, who has accomplished valuable work since his appointment some three years ago.

Mr. Bacon, in his opening remarks, spoke of the splendid work accomplished by the S.P.B.A., and strongly urged his hearers to take "Eggs," which he described as far and away the best poultry paper published. He remarked that he took five, but none of them could compare with "Eggs." Mr. Evans, who proposed a vote of thanks, also spoke of the good work of the Association, and Mr. Johnson, who seconded, remarked on the great value of the experimental work at Wellingham, and how pleased he was at the proposed inspection and registration of farms. Mr. Price gave some excellent advice on trap-nesting and on the purchase and mating of stock birds. There were numerous questions at the conclusion of the lecture.

The progress which poultry-keeping has made in Gloucestershire during the last few years was impressed upon me, both by the enthusiasm of the audience, and by Mr. Price, who assures me that the County Laying Test is the best and most successful in the country, and that the housing is also the best in the country. I am not going to commit myself on this point, as time did not allow me to pay a visit to the test, and other counties may make the same claim. But it is good to see so much enthusiasm. It is only fair to say that Gloucestershire has done remarkably well in all the tests this season.

Thus we have Mr. G. B. Metcalfe winning with Black Leghorns at Harper-Adams, with Messrs. R. A. and A. Johnson, of Chalford, third; Messrs. Sheppard and Britton, of Staple Hill, third in the Columbian Wyandotte section; Mr. Metcalfe fourth with Anconas; Mr. Drysdale Woodcock, of Stroud, second in White Leghorns; and Mr. Brown, of Bristol, fifth. So that in the Harper-Adams' Test Gloucestershire has done remarkably, as, in addition to this, Messrs. Johnson were second with single-comb White Leghorns.

Turning to the County Test, the full report of which has just reached me, we find that some fine records have been made by both amateurs and professionals. The Sherborne P.F. won in the light breeds, with the excellent score of 1,202 eggs in the 48 weeks, or an average of 240.4 per bird. Mr. Metcalfe is second with 1,139 eggs, and Mr. J. L. Brown third with 1,164, a higher percentage of which were second grade. There were many individual birds of exceptional merit in pens which took a lower position. Mr. Sutherland had two with records of 240, one of 238 and one of 209, but was let down with one which laid but 170. Miss Baylis had four birds with records of over 200, as did Mr. Forrest. But I also notice a few very low individual records. In the Amateur Section, Messrs. Davies, Mrs. Merridew, Messrs. Japp, Crewdson and Tomkins had some remarkably good pens, and the amateurs may well be proud of their success, as these pens reached a high level of excellence throughout.

In the Heavy Breed Section, Mr. Partridge, who won with a score of 1,203 eggs, included in his pen one pullet with a record of 301 eggs. The Coaley Poultry Farm were a good second, with 1,153 eggs, again White Wyandottes. Major Dugdale took the third position with a pen of Light Sussex, laying 1,074 eggs. Messrs. Loder, Beales, and Metcalfe took fourth, fifth, and sixth places respectively, all with Wyandottes. Mr. Partridge entered a pen of Barnevelders, which had the excellent record of 1,039 eggs, with a highest of 240. A pen of Orpingtons, on the other hand, whether Buff or Black is not clear, laid but 540 eggs, one bird contributing but 35 and another only 93. It would, I think, assist competitors if some explanation of these low records were attempted. In other pens I see records of 92, 95, 32, 51, and 94. It would be interesting to know how these birds handled, there must be some explanation or indication of such poor records. No remarkable records were put up in the Duck Section, Mr. G. H. Simmons winning with a pen of Khaki-Campbells, the four birds laying 702 eggs.

DISCOUNTS.

Messrs. Carr, Macdonald, and Clevely, ask us to notify our members that they are compelled to withdraw their offer of 5 per cent. discount, and therefore business should be transacted with them direct, and not through the Association.

Messrs. Uveco Cereals have announced their intention to give a discount to all our members on orders sent through the Association.

Mr. C. A. Hannaford draws our attention to a printer's error which occurred in his advertisement of the SMALL UNIT HOUSE last week. The Discount should have been 5 per cent. until the end of December, *not* 50 per cent. as stated.

KEIGHLEY AND DISTRICT BRANCH.

The Monthly Meeting of the above Branch will be held at the Temperance Hall, Keighley, on Wednesday evening, January 9th, 1924, at 7.45 p.m. Members please attend—business urgent.

H. CALVERT.

THE AGRICULTURAL CREDIT ACT, 1923.

Sir,—It may interest your readers, farmers, poultry-keepers, and others in your district to know that a meeting will be held on Saturday, January 5th, at 2.30 p.m., in the room of the National Farmers' Union, 18a, Prince of Wales Road, Norwich, when Mr. W. H. Warman, of the A.O.S., will explain the working of the above Act, and if the meeting approve a Credit Society will be formed for the Norwich district.

Yours truly,

"ARDENT."

Will our members kindly note that a mistake has occurred in Mr. R. H. Berney's advertisement on page xlv. of the Register. Under section (4) the wording should read, "who laid 363 eggs in 365 days." We express regret to Mr. Berney that this mistake should have crept in.

Some Fruit Growing Notes to Help Poultry Keepers.

By F. W. WHEELER, F.R.H.S.

PRUNING (continued as promised). It is important that this side of our care of the fruit trees should not be neglected; in fact it really requires thoughtful study, and you will find it is both very interesting and fascinating.

Success in fruit growing, and a profit or loss, is easily influenced by applying a right method, or otherwise, when at work with the knife. (I do not believe in the use of the secateurs for winter pruning as you cannot get so clean a cut or as near the eyes as required; but for summer work they are very handy, although a little use soon makes one quite as quick with a good knife.)

It is surprising how many think pruning is just a cutting back of shoots because the trees look too crowded ; whereas the amount of wood to cut away, or the correct lengths to be left, makes all the difference in the final results obtained.

Even this is not the same every year but regulated by age of tree and a vigorous, weak, upright or spreading variety ; and these points are again affected by nature of the soil in which the trees are growing ; and yet again by particular habits of certain varieties.

It may have been noticed that I generally refer in my notes to apple growing ; this is chiefly because I think them, on the whole, the best for the poultry keeper's side line ; still if I do not tire out my readers, I will try and write something on pears, plums, etc., in the future.

I spoke of "amount of wood cut away," or "left" as being important, so I want to jot down some remarks on "tipping," that is shortening back the main branches that are to form the trees, or bushes, and known generally as "leaders," and in this I supplement my own experiences more particularly with some of the latest experimental results that are published from time to time by our Research Stations.

Pruning young trees may often delay blossoming, but we have always to bear in mind the future and establishing our orchards to give steady crops of good marketable fruit ; even size of fruit and the trees will eventually be larger and better with right pruning, and experiments have likewise shown that by correct tipping trees are much less affected by scab, mildew, and canker. Is not this help to resistance of disease also very important ? It means not only cash gained but time later on saved in having to fight these troubles.

I am sure for the poultry-keeper these and similar diseases are what he will have to fight against more than insect pests, for his birds will almost entirely keep the latter in check.

Let us call to mind a few of the general principles. Suppose I state them briefly, and in the next article add some further notes of variations of treatment respecting the habits of certain varieties.

Of the strong growing kinds, tipping must be fairly severe for the first year or two, cutting back a half or one-third of the current year's growth ; (the weaker shoots having the most removed), then, progressively less hard until about the fifth or sixth year it might almost cease. I say "almost" for trees of the same age vary considerably in their growth, and leaders on trees are not uniform in their development.

Weak growing varieties like the Lanes' Prince Albert require, as a general rule, more severe pruning, and this variety, together with such as Cox's or Allingtons have to be tipped well in order to obtain stems stout enough to carry weight of fruit, otherwise branches will be borne down and with difficulty got back into position. (In dealing with named varieties I shall refer again to effects of tipping on Allingtons and what to look out for.)

As the work of tipping leaders grows less, it is still wise to keep open centres to the trees, for taken all round, this principle is strongly recommended as helping in both size, colour, and total weight of fruit obtained.

I also mentioned "lengths" of wood to be "left ;" and I had in mind the treating of side or lateral growths. Here again—speaking generally—the "long spurring" system of leaving three eyes, as against the "short spurring" or leaving one eye seems to give the better results in the long run. With some varieties, if the laterals are cut back to one eye it is ruinous ; for instance with Cox's or Lane's P.A., the laterals will then often die right out and leave the bare stems.

Some very strong laterals are best cut right out ; otherwise if only shortened they may only throw out more masses of wood shoots.

My closing remark for to-day is this : when you do spend time and money in planting fruit trees, give them proper and regular attention and not just by fits and starts, otherwise the outlay is labour and cash expended in vain. I am led to say this, because I have noticed so many neglected **young** plantations ; some of which are now perfectly useless, and I doubt if they ever will produce fruit—certainly not paying crops. Do you let your baby chicks "take their chance" after they have once started on life's journey ?

Modern Poultry Feeding.

By TOM NEWMAN.

RYE.—Rye is not often used in this country as a poultry food, although some of us were compelled to do so for a time during the war. My own experience of it for a few weeks was, that it caused serious digestive trouble, when fed in the same quantity as we usually feed grain, that the birds did not eat it readily, and my conclusions were that as a poultry food it is of very little value. Its average composition is similar to that of most of the cereal grains. The analysis is :—

Protein, 11.8 ; Carbohydrates, 73.2 ; Ash, 2.0 ; Fibre, 1.8 ; Fat, 1.8. In spite of the fact that the fibre content is lower than that of maize, rye is much more difficult of digestion.

RICE.—Most chick feeds contain rice. It is difficult to understand why, as polished rice is almost negligible as regards its ash content, and has a lower protein value than any of the cereal grains. Its by-products are of some value, but to those I will refer presently. The average composition is:

Protein, 7.6 ; Carbohydrates, 66.7 ; Fibre, 9.3 ; Ash, .3 ; Fat, 1.9. Polished rice is deficient in its protein content, in fat soluble A vitamin, as well as in the water soluble B, the absence of which is said to cause the disease known as Beri-beri, among the rice-eating nations ; it is also deficient in its ash content, so that its value in a chick feed is hard to understand.

MILLET, DARI, and KAFFIR CORN are all of the Sorghum tribe. Millet is commonly used in chick feeds, but its value is doubtful, as it is very difficult to digest owing to the very hard outer husk. I never recommend it for this reason; very often when dissecting chicks I have found it entirely undigested. A comparative test with Dari and Wheat was carried out during the war at the Harper-Adams' College, and as far as results went the Dari compared very favourably with wheat as the grain feed. As the price is low, there appears to be no good reason why it should not be used now, if it can be bought more favourably than the other grains. The analysis of the three is as follows:—

Millet.—Protein, 12.1; Carbohydrates, 61.0; Ash, 3.6; Fat, 4.1; Fibre, 8.4.

Dari.—Protein, 10.1; Carbohydrates, 72.8; Ash, 2.0; Fibre, 1.7; Fat, 3.5.

Kaffir Corn.—Protein, 11.8; Carbohydrates, Ash, 1.7; Fibre, 2.3; Fat, 3.0.

MILLET is said to be rich in the vitamin fat soluble A, but the high fibre content and the nature of the husk discount its value as a chick feed.

BUCKWHEAT is not extensively used in this country as a poultry food. In France, where it is forbidden to feed wheat to poultry, it is one of the most popular feeds. Its composition is much the same as other cereal grains, except that the fibre content is very much higher; it is woody fibre too, and this very much discounts its value as a grain feed. Buckwheat middlings—i.e., that part of the kernel immediately under the hull—has a very high feeding value, if the miller is not tempted, as he too often is, to adulterate them with a high per centage of the hulls. The protein content of pure buckwheat middlings is 28 per cent.

The average composition of buckwheat is:—

Protein, 10.8; Carbohydrates, 62.2; Ash, 2.1; Fibre, 10.8; Fat, 2.5.

Now I have given the average composition of the cereal grains, and it will be seen that they do not vary greatly. They may be all classed as heat giving and energising foods. The protein content of every one of them is low, and in every case incomplete, that is, deficient in one or other of the amino-acids. On no single one of these proteins, nor by any combination of them can we obtain normal development. The ash content of all of them is poor and unbalanced, all are deficient in the lime salts. If we consider the value of any one of them as it affects egg production, I should give to maize the first place, because it does more to help the high producer who is drawing heavily on her bodily reserves of fat to form yolks. But this must of course depend on the composition of the mash; generally, I think it is sound. It is said, too, that yellow maize is fairly well off as regards the vitamin A, in which the other cereals, with the single exception of millet, are deficient. Obviously we must look to the mash to supply the protein and the mineral salts, and it is for this reason, and owing to the fact that the mash is the more easily digested, that I have questioned the wisdom of feeding so much whole grain. Oats are, I think, the least economical of all the grain; the reason is obvious.

LECTURE AT MANCHESTER.

The fifth of a series of Poultry Lectures, under the auspices of the Manchester Agricultural Committee, was held at the Burgess Street Schools, Harpurhey, on Friday evening, 14th December.

Councillor T. Hoyle presided before a good audience, and in his opening remarks said that in this very district 30 years ago he had kept poultry on the intensive system under healthy conditions, and did remarkably well. The subject of this evening's meeting "Backyard Poultry Keeping," by Mr. Tom Hudson, of Waterfoot, would be particularly interesting especially to those who had to confine themselves within a backyard for their hobby.

The lecturer stated that poultry keepers in Manchester were receiving every encouragement through the Agricultural Committee with such a good winter syllabus of lectures, thereby through this medium teaching its citizens the best ways of keeping poultry. Mr. Hudson, for the benefit of the beginner, commenced his subject with housing, which was a very important factor, and explained every point and detail of management in a very clear and understandable manner. He claimed that the ideal breed for strictly intensive methods was the White Leghorn, the principal reason that they were much more active than the heavy breeds of poultry. A good second, however, was to be found in the White Wyandotte, these being the leading breeds for egg production. In respect to Rhode Island Reds, these required much more careful handling to obtain the best results. Feeding was important, for it was through this that the birds obtained the requisite amount of work to keep them in condition, his own opinion being the dry mash system of feeding, by which the birds could not possibly gorge themselves and then huddle together waiting for the next feed.

Handle birds frequently to see that they do not become fat. The combined dropping board and scratch was better than a roost and separate scratching shed. Observation plays a great part in profitable poultry keeping, so it becomes necessary to know your birds and the birds you wish to obtain the best results.

Mr. Hudson also touched upon keeping stock a second year, the moult, and chicken rearing.

Many questions were then asked, and a hearty vote of thanks concluded an instructive meeting.

W. G.

THE UTAH EGG TEST.

AN ACCURATE METHOD OF OBTAINING INDIVIDUAL RECORDS WITHOUT TRAP-NESTS

Professor Alder, of Utah, U.S.A., lecturing before the Western Section of the International Instructors and Investigators in Poultry Husbandry, stated that he considered the culling of the flock as one of the vital measures. Under high cost of feed the loafers in the flock must go. Under increased wages he questioned the trap-nesting of the laying flock as being the most profitable means of culling.

So far the only accurate methods in general use to determine the daily individual record of the fowls is by the use of the various forms of trap-nests or cooping the hens singly. The latter is the most accurate, but is out of the question in large flocks. This method is not perfect as it has some objectionable features, such as initial cost, labour requirements, effect on the hens, and the fact that some hens refuse to go into the trap at all, while others occasionally drop an egg in the scratch shed, or on the ground inside, or out of the house, or hide their eggs during certain seasons in some out-of-the-way place.

He then presented a paper entitled "An Accurate Method of Obtaining Individual Egg Records Without the Trap-Nests":—

For a number of years at the Utah Experiment Station the daily individual egg record has been obtained by testing the fowls each morning. During the first few years trap-nests were used as a check on the test until it was conclusively demonstrated that the egg record of each hen could be more accurately kept by means of the test, and in much less time and at less expense than by the use of the trap-nests.

Lillie, in the "Development of the Chick," states that in the development of the egg it remains in the uterus from twelve to twenty-four hours for the formation of the shell and laying. In other words, if a hen is to lay on a given day, the egg is in the uterus very early in that morning with the shell almost, if not entirely, formed, as the large majority of fowls lay before noon rather than after that time. In actual practice it has been found that if a hen lays at any time during a given day, the egg can easily be felt early that morning by a slight pressure with the fingers on the side of the abdomen just below and nearly to the end of the pelvic bone. This pressure should be very light, and should come from the face of the last two joints of the finger rather than the end, so as not to injure the hen or egg.

The test is very simple, and can be accurately applied by almost anyone after a very few trials. The big problem, however, seems to be in catching the hens each morning, so as to be able to make this test. This, however, soon becomes a matter of routine to the hen, and is no trouble whatever if done in a quiet systematic way.

It is not the purpose or intention of the speaker to offer this method of obtaining the daily individual record as a substitute for the trap-nest under all conditions, for, like the trap-nest, it has its limitations, because it cannot be used under all conditions to give the best results. But under the conditions to which it is adapted, it is more efficient in several ways than is the trap-nest.

The test is made each morning shortly after daylight, usually by two men working together, one testing the hens and calling out the numbers of those which are to lay, while the other gives these hens the proper credit on the monthly sheets and gently crowds them up to the one doing the testing.

The two men go into the house together. One takes the monthly egg sheet and goes to the east end of the building, so as to drive all the fowls into the west end, the other kneels down facing the west close to the wall just on the east side of the small exit which is in the south side of the building near the south-west corner. The fowls are all straight across from this exit, and as soon as they see it open first one and then another runs out. As they near the opening, the one doing the testing quickly puts his left hand in front of the fowl, at the same time bringing his right hand up from behind, so that both hands catch the fowl at about the same time. As soon as a firm hold is obtained on the fowl with the left hand, the right hand is dropped down on to the abdomen from behind with the thumb on the left side and the fingers on the right side of the fowl's body, the second joint of the first finger touching the end of the pelvic or pin bone.

With a gentle pressure in and upward behind this bone with this finger the egg can be readily felt if one is present. While the test is being made the fowl is held in the opening so that the other hens cannot get out. The fowls soon become accustomed to this method, so that it is a very common thing for them to run up and stop just in front of the opening, two or three at a time waiting for their turn.

After the fowls have become accustomed to the test—that is, trained so that they will run up to the exit as soon as the one doing the testing is ready for them—one man can test and record in the small colony houses almost as rapidly as two, but in larger flocks it is better for two to work together as described above.

In training the fowls to run up to be tested considerable patience is required on the part of those doing the training. The fowls must be handled just as quietly and carefully as possible, and an effort made to handle the fowls in the same way each morning.

One of the big advantages of this method is in the time saved as shown by the following: In a trial for time two men working together went through thirty pens in a long house and sixteen colony houses, testing over 500 hens in 37 minutes. When the testing was done they were free for other work until time to gather the eggs in the afternoon. In running trap-nests on the same fowls it took one man about half his time for a ten-hour day to look after the nest, record the eggs and free the fowls.

Where only the individual record is desired, and no pedigree breeding is to be done, this method of obtaining the record saves the expense of equipping the houses with trap-nests, economises in the labour required in caring for the fowls, and gives a more complete individual record than the method now in common use.

Individual pedigree breeding cannot be carried on by this method, as there is no way by which the eggs of a certain hen can be identified. So that in experiments in breeding work, where an individual pedigree is desired, the trap-nest must be used during the breeding or hatching season. If, however, group selection or breeding is practised—that is, the grouping of hens with a record above or below certain limits—there is no particular advantage in using the trap-nest rather than this test. At the Utah

Station, since nearly all the houses are equipped with trap-nests, the trap-nests are still available for the pedigree breeding work during the hatching season, but as soon as this is over the trap is tied down and the record is kept by testing. The fowls are tested every morning during the year, whether the trap-nests are working or not.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package. and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations

Brenda (Chester). You say this male is "going light," and ask if you should breed from the pullets which you bred from him when they are hens; they are all healthy and vigorous birds now. He was a healthy and vigorous bird right up to the moult and moulted out all right, but has gone to a shadow since then. It is hard for me to advise you; as far as I can see there are no signs of inherent disease, and it would be far better to send the bird to Capt. Leeney and seek his advice, as there may be a cause for his "going light" other than that of tubercular disease. (2) Brown Leghorns would answer very well on the intensive system, quite as well as any other variety.

E. J. G. (Cheshire). The sample of thirds is a very poor one, and it would be decidedly wiser to pay 10s. 6d. for a better one. The ground oats are not Sussex ground; they are fair value for the money. You will never find the whole of the husk in the Sussex ground oat, in a true sample, it is hardly discernible, it is ground so finely. I am glad your birds are doing remarkably well on my formula. If you include the R. I. Red hen in the pen of Wyandottes, you could certainly tell the progeny, but not at a day old.

B. T. R. (Hawkhurst). It would be most unsatisfactory to use meat meal unless you have some idea as to its albuminoid content. From appearances I do not call it a good sample. I would not care to buy it from any makers who could not give me a proper analysis.

C. O. (Wakefield). The sample you send is not "Sussex" ground oats. It is a pure ground oat. So far your dealer is correct. It is certainly not worth more than 1s. 9d. per stone. I do not care who gave you the guarantee; they were quite wrong in stating they were Sussex ground oats. Very pleased to hear of your success on my formulas. An average of 230 eggs per bird from eight White Leghorns is really excellent, and you ought to breed some good stock from them.

"Doubtful" (Little Burstead). As the pullets were bred from pullets I would not breed from them next season, but keep them until the following year. I cannot answer for the firm whose catalogue you received as I do not know them personally.

G. N. W. (Midlothian). I am very pleased to know that your Buff Rocks have laid so remarkably well on my formula. With reference to your starting the group system of breeding. It would be necessary, in the first place, to have four unrelated cockerels from different breeders. If possible, I should put up four pens of ten birds each with good records, with one hen in each pen as a cockerel breeder. She would necessarily want a good record, say somewhere about 240. You could then intermate the pens without introducing new blood every season.

"Devonian" (Richmond). I cannot answer your question as to whether a place near Newport, Mon., would be a good district, as I do not know the markets there, but I should think it would be quite good. The incubator you mention is quite reliable. I do not know any better system of rearing on the small unit system than a house with a hover for 100 chicks. Of course, if you prefer the larger unit, it will be necessary to have a brooder house. You could get the pamphlets giving my dry mash formula and grain mixture from us for 1s. 1d. If you become a member of the S.P.B.A. you will receive free advice by post, and a copy of the Register, which includes the article "From Shell to Maturity." I take it that you have not had a great deal of experience, and, therefore, to count on rearing 400 pullets to profitable maturity, I think you should put down 2,000 eggs. Yes, the three breeds you mention would be quite suitable.

R. E. T. (Gosnargh). You ask my reason for saying that you would not get eggs if you continually dosed the birds with Epsom salts, and I am afraid from the tone of your letter that you are of opinion that you are getting eggs because you are giving Epsom salts. Did it ever occur to you that you are getting them in spite of it? Continuous dosing with any aperient medicine can only result in lowering the tone of the bird, and in very many cases which have been submitted to me I have found this is the case, and that when the salts have been discontinued there has been a better egg yield. Keep your salts for sick birds. Anything which lowers the tone of the bird will not act as a preventative of roup or anything else. It will be more likely to make them susceptible to it. There will be no fatty-degeneration if your birds are properly fed and kept active. You say that in two years you have already had a dozen birds with roup, and that in spite of the salts. Well, I know dozens of farms where they have not had a single bird with roup, and they have never had any salts. You say: "My idea for giving Epsom Salts is as a preventative against fatty-degeneration, and colds and roup," and working on those lines that "prevention is better than cure," and that "the best foods are the cheapest in the long run." Epsom salts can hardly be described as a food. If you really had an outbreak of disease where it might be of use to use Epsom salts, you would find the birds would not so readily respond to the treatment since they have been continually dosed with them. Green foods and the meals and grains supply all the magnesium salts which a bird requires when it is healthy.

A. M. B. (Sudbury). With reference to the small egg and your method of feeding. Your mash would be greatly improved if you were to cut out one part of the bran and alter your grain ration to three parts kibbled maize and one of wheat; omit the oats altogether. There has been rather too much bulk in your mash, and for that reason I am of opinion that the alteration I have suggested will lead to increased size of egg. The addition of more grain food would not lead to an increase in the size of egg, but it would help matters if you were to replace half the fish meal with the same quantity of dried yeast.

"Enquiries" (Guernsey). The clipped oats are a good sample, although the price seems rather high. The special pollard is of fair average quality. The ground oats are very good; excellent value for the money. The wheat is a good sample, but I much prefer the small, hard, red wheat.

W. L. A. L. (Mottingham). The sample of ground oats "B" at 14s. 6d. f.o.r. King's Lynn is really a good one and excellent value for the money. The other at 16s. is not "Sussex" ground, but is good value at the price paid home.

R. G. W. (Auchterarder). A good dry mash for your laying stock would be: 2 lbs. bran, 4 middlings, 1 Sussex ground oats, 1 of maize meal and one of fish or meat meal. You could use this as a wet mash, but do not scald the bran; keep it to dry off the remainder of the ingredients with. For a breeder's mash add another half pound of ground oats, and replace half the fish or meat meal with dried yeast. It is not possible to give a mash which would suit equally as well for egg production and breeding stock, because with the latter it is highly desirable to supply all the ingredients which make the hatchability good, while in the case of the former it is only necessary to produce eggs.

K. W. (Galashiels). Good wet mashes for your chicks would be: Biscuit meal scalded and dried off with middlings. You could give this twice daily. Bread and milk—that is, a little milk poured into a basin and enough bread to fully absorb it so that you can break it out with a fork, and Sussex ground oats mixed to a crumbly condition with milk. Skim milk will answer. You must be careful not to overfeed, especially during the first few days. There is a great danger of this until the seventh day, because the yolk is not completely absorbed until that day, and if the chicks are overfed there is a non-absorption of the yolk, which decomposes and causes serious digestive trouble. Do not feed for a full 48 hours after they are hatched. Give green food after the sixth day and sprinkle a little finely-ground oyster shell or limestone dust over the mash once a day. I am very pleased to hear you have had such good results since following the advice given in "Eggs."

POST-MORTEMS.

A. H. B. The pullet had an amyloid liver, weighing 12 ounces, and displacing other organs by its size and pressure. The oppressed breathing you observed was due to pressure forward and encroachment upon the chest cavity. You say nothing about rations, but I should suppose you are giving too much fish meal. All the same for "the great ones of the earth" having endorsed ten per cent. of fish meal, I am still of opinion that five is enough, and six or seven the extreme limit of a food which is primarily unnatural, and often containing much oil, which is prejudicial to the liver, and salt which is an irritant and causes high temperatures which again act prejudicially on the most important of the digestive organs.

E. S. Asks a question about supplying lime in a soluble form, and refers to an article in which lime-water is mentioned in this paper. There is nothing easier to make, and the lime content is always the same, as it has definite solubility of 13.5 grains to the pint. To make a gallon of lime-water, a lump of fresh burned lime, weighing about two ounces or more, is broken up to admit a passage into a clean stone gallon bottle, filled with water. It must be well corked and shaken, and is ready for use next day. An excess of lime is of no consequence, as no more than the above quantity will dissolve.

Mrs. R. Heart failure, due to pressure of fat. The abdomen had more than an inch thick of fat. There was no sign of infectious disease. Some modification of the ration is desirable, or more exercise, and occasional fasts.

E. K. R. Apoplexy, precipitated by straining to pass a large egg. She was much too fat inside, and the heart overlaid with fat and labouring under pressure. No sign of any infectious disease. With such high feeding and artificial light you are forcing the pace, and they cannot all keep time with it. You either take the risk or lower the tension.

"W. A." My diagnosis of a former case as poisoning, and with suspicion of a horticultural poison, is improved upon by your own observation in the present case. This pullet had a crop full of shale and other hard material, but none of it reached the gizzard. The carbide of calcium filled the proventriculus or glandular stomach, and the gizzard was packed with the like dirty product, but scarcely a bit of grit. I am sending you the contents of the crop in one parcel and the proventriculus and gizzard in another "for your information, please," although I am more indebted to you than you to me for the discovery of the poison. May I ask other readers who happen to see this reply to accept it as an example of how the enquirer should help the post-mortem examiner by providing ALL the information available, and at the same time as the body of the subject is sent. In some articles I am writing on poisoning I have specially referred to those persons who withhold material facts instead of giving all the information available. With every aid it is still sometimes impossible to ascertain the cause of death.

H. LEENEY.

OUR FRONT COVER.

The experiments in nutrition which are being conducted at the Wellingham Poultry Farm, Ringmer, Lewes, under the auspices of the S.P.B.A., have made the farm famous throughout the country.

Commercial Egg Farming did not long prove attractive to Miss Malcolm and Mrs. Pember. Pedigree work, with all its problems, appealed more strongly to them, and by careful mating and blending of the best strains in the country they have succeeded in building up a flock of Leghorns which it would be difficult to surpass.

"Wellingham Worker," whose photograph appears on our front cover, is typical of the stock on the farm, and when visiting Wellingham some months ago we picked her out from a group of hens as an ideal "handler," and prophesied great things for her. Her record of 294 eggs in twelve months, weighing from 2 to 2¼ ozs., all of beautiful shape and texture, was made in a flock of one hundred birds.

If our readers closely examine the photo they will see that she is a typical layer. Notice the head points first—the well-developed wattles, lobes and comb—bright bold eye and strong beak; the length of back with good width, the tail carried high; the great depth, and note how tight she is in feather. Further, look at the broken tail, indicating her many visits to the nest, and then carefully note the shanks, often overlooked by those who attach too much importance to capacity.

Her complete record is 321 eggs in 57 weeks, as she matured early, and the record given is only from the period October 1st to September 30th.

At the conclusion of her great performance she weighed only 3 lbs. 6 ozs., but has quickly put on weight during her rest of five weeks, and now scales 4 lbs. 2 ozs.

She is now mated to a tested cock, and great things are expected of her progeny. She should certainly do much to keep up the very high standard of the stock at Wellingham.

Notes on Utility Ducks.

By A. HAROLD PAINE.

It seems quite a long while since my last contribution, but really time passes so quickly and there is so much to do. I suppose most of what I write is about the value of the duck as a layer, but I must be forgiven if I may appear to stress that factor almost unduly for the reason that it is so amply confirmed on all hands.

The final report of the National Egg Laying Test, 1922-23, at Dodnash Priory Farm, Bentley, Suffolk, held under the auspices of the National Utility Poultry Society and the Utility Duck Club in conjunction with the London and North -Eastern Railway Co., has now been issued, and the ducks again are well to the front.

As on previous occasions I give the score values of the leading twelve pens of pullets in comparison with the leading twelve pens of ducks. It will be remembered that each pen consists of five birds:—

	Eggs.
White Leghorns	1103
,, ...	1092
,, ...	1077
,, ...	1076
,, ...	1064
,, ...	1064
,, ...	1035
,, ...	1032
Black Leghorns	1031
White Leghorns	1024
,, ...	1012
,, ...	1011
Fawn and White Indian Runners	1352
Khaki-Campbells	1350
,, ...	1275
,, ...	1261
,, ...	1234
,, ...	1228
,, ...	1209
,, ...	1199
,, ...	1172
,, ...	1171
Abacot Rangers	1167
Khaki-Campbells (4 only)	1166

One can draw all sorts of conclusions from these figures, but the records in themselves are, I think, sufficient to justify the claim that the average duck beats the average pullet every time.

In the report from which my figure are taken there are many points of great interest to both poultry and duck keeper. It states that there is a distinct falling off in size of egg of the pullets, the percentage of second-grade eggs laid in this test being 17.13, compared with 9.43 of the 1921-22 test. This is attributed very largely—if not entirely—to the result of breeding for abnormal numbers, the inevitable result of which is a compensating decline in size. I have to admit that this trouble is not confined to the pullets' eggs alone, but is beginning to show itself in the duck eggs as well. Still, as in the scores given the *minimum* size of the duck egg allowed has been 2 ozs., this trouble is as yet not a very serious one.

I would just like to call attention to the Hon. Joan Ashton's pen of Khaki-Campbells, in which one bird died quite early in the test, notwithstanding which the pen finished fourth in the section with a score of 1,166 eggs, an average approaching 291 per bird in the forty-eight weeks.

The most satisfactory feature of the whole test in the duck section was the high average of production throughout, that of the Khaki-Campbells being exceptionally good, 211.25 eggs per bird in the large flock section and 227.73 in the small flocks. Indian Runners also showed up excellently, and if even as a whole they were behind Khaki-Campbells yet there are two points that should be remembered. One is that the Indian Runner, the so-called Leghorn of the Duck World, probably consumes much less food than the Khaki-Campbell, and being a rather nervous and timid bird it probably does not settle down nearly so quickly as ducks of a heavy breed.

Most interesting of all perhaps is that the high records of the ducks were attained on a comparatively "low" diet throughout, the mash being an exceedingly simple and inexpensive one without a high percentage of fish meal at any time.

Correspondence.

MR. HANSON'S SCHEME.

To the Editor of "Eggs."

Dear Sir,—Your recent invitation to readers of "Eggs" to comment on Mr. Hanson's scheme for a Co-operative Fattening Station prompts me to submit the entirely selfish views of a producer, who stands to gain greatly by such an enterprise. As a producer I can see nothing but advantage to be gained by participation in the scheme, though I have no doubt that the public-spirited organisers and administrators of the undertaking will have many difficulties to face in the early stages, which is all the more reason for us to give them every possible support.

From the breeder's point of view, the knowledge that an immediate channel for the disposal of imperfect specimens is available will be of material value, enabling him to hatch a larger number of birds from which to select his grade A stock. It will give us more confidence in our culling operations to know that our culls have a ready market awaiting them, if not at a great profit, at, in any case, a minimum of loss. Far too many pullets are allowed to grow to maturity simply because they *are* pullets, and the knowledge that the inferior ones would be fattened and sent for us in the best possible condition to the best market would enable us to extend our hatching operations considerably; or, failing that, it would at least enable us to devote to our best pullets the room otherwise occupied by the inferior birds.

I do not know if it is Mr. Hanson's proposal to enlist the patronage and active support of the S.P.B.A., as a starting point. I hope that it is so, and that the Council of the Association may see their way to furthering the scheme.

I weary of the perpetual parrot-cry of (undefined) co-operation. Poultry-keepers are urged in countless periodicals to "co-operate," but how on earth they are to do so with any prospect of success, except under the auspices of such large and influential associations as the S.P.B.A. I fail to see.

A large membership is the first essential for a co-operative society, and in rural districts, in which one may reasonably imagine a considerable number of poultrymen to reside, the communications are frequently of a nature to preclude the possibility of the frequent intercourse between members that is of prime importance.

An executive staff, office, store-house, packing sheds and means of transport are all as much needed in proportion for a small as for a large co-operative society, and without the paid services of a manager or secretary to keep accounts, arrange for collection and despatch of consignments, and generally to be responsible for the proper administration of the society, nothing but confusion and loss of money can be expected.

Small co-operative societies, though ideal in theory, defeat their own object in practice.

The expenses of administration are such that, with the best intentions in the world, each small society has to become a competitor of each other's society, thereby cutting prices to effect sales, and unless the produce handled reaches proportions large enough to command the attention of really large buyers, it has, as before, to pass through the hands of the ubiquitous middleman with one more link added, in the shape of the co-operative society itself, to the chain of passers-on.

I have often hoped that one of the large poultry societies would start such a co-operative association as part of its work.

I am convinced that if the S.P.B.A., for instance, with its great membership and with its store of practical knowledge, were to organise and equip such a fattening establishment as Mr. Hanson suggests—combining with it, possibly, a great collecting depot for eggs as well from its members—not only would the undertaking be a highly profitable one in itself, but it would quickly attract an enormous membership to the S.P.B.A. Many a farmer, who has not yet been attracted to the S.P.B.A., would waste no time in joining the association if thereby he saw a quick and safe means of disposing of his produce, and once having joined he could not fail to be infected, through the interesting pages of your paper, with the desire to follow in the footsteps of those who have made a success of their poultry on scientific and progressive lines.

I hope that you will not think it a great presumption on my part to suggest that our association should, as part of its activities, become a trading organisation, or form a trading branch. Some such organisation is bound to be formed some day, if the hundreds of thousands of poultry-keepers are to defeat the difficulties which now confront them, and one advantage of such a branch being formed by the S.P.B.A., in preference to most other societies, lies in the fact that all the members have a weekly meeting place for the exchange of views, and for the proffering of suggestions and criticisms within the columns of "Eggs."

I was sorry to read the destructive criticisms of Mr. Hanson's scheme contributed to the current issue of "Eggs" by Mr. H. R. Haward.

Mr. Hanson is actuated by a public-spirited desire to make the best of what is now a bad job—that is, the disposal of our surplus young stock—and he has not, I think, suggested entering into competition with the plants that deal only in the highest class of specially bred table-poultry. If Mr. Haward is to be believed, all the best-known breeds of utility poultry are very indifferent for table purposes.

With regard to one or more of the breeds which he condemns, I can assure him that he is quite mistaken. My own experience tells me that a skilled fattener even can do little with a badly-reared bird; but with young stock which has grown and thriven from the shell, and which is bred from a good strain of vigorous parents, excellent fattening results may be looked for in almost any breed.

I shall look forward with great interest to the development of Mr. Hanson's scheme, whether it comes to fruition under his own able direction or whether it will have, as sponsor, the Scientific Poultry Breeders' Association itself. Should our Association take an active part in the direction of the undertaking they would be doing a further great service for the whole of the industry in this country.

Yours faithfully,
ROBERT C. B. LETHRIDGE.

FLOCK AVERAGES.

To the Editor of "Eggs."

Dear Sir,—I have been interested in the correspondence which has appeared in your columns in regard to the question of Flock Averages, as I have been considering what basis should be adopted to arrive at correct comparisons.

The matter is fairly simple where there is a flock of birds all about the same age, but more difficult for those of us who have to breed early and late to keep up stocks on a moderate-sized plant. If, from a given date, the number of eggs produced be divided by the total number of birds in the flocks, the man who culls frequently and drastically will show a better average than one who spends less time in culling, *and yet the remaining birds after the latter has made his last cull may be just as good as those left in the former case.*

What is needed seems to be a basis which would apply in both cases, and this could be achieved by commencing the record at a given date—say 1st October—the total number of eggs laid during each month to be divided by the total number of pullets which have laid one egg or more during that or any earlier month. This could be continued until, say, 31st December, when the final cull should have been made, and thereafter the total number of eggs laid should be divided by the total number of birds in the flock. The sum of these monthly averages up to the 30th September would then give a twelve month's flock average.

This suggestion relates only to pullets, of course, and I should be interested in any comments which those interested in the subject may have to make thereon.

Yours faithfully,
HERBERT ROWNTREE.

22nd Dec., 1923.

COST OF FEEDING

To the Editor of "Eggs."

Dear Sir,—In your issue of the 28th ult., replying to "J. R. S. Carterton," your remarks on the prices of his poultry foods convey the impression that these are excessive.

As a poultry-keeper and retailer of poultry feeds, I should like to point out that the railage from London to Bampton Station is 19s. 5d. per ton; from Bristol 17s. 10d. per ton for two-ton trucks cartage from station to Carterton, 4s. per ton; and if you add 1s. per cwt. retailer's profit, which I am sure you will not consider excessive to cover cost of storage, handling, delivery, and bad debts, you find J. R. S.'s prices are not so exorbitant as you would have him believe.

I do not happen to have my London "Corn Circular" of Nov. 28th by me, but enclose copy of Dec. 7th issue from which you will see that prices are about the same as the data you mention. In this paper the prices are quoted for the foods in your reply to J. R. S. are :—

Ordinary Turn Middlings ...	£8	0	0	per ton.
Fancy Plate Pollards (ex-ship)	£9	5	0	,, ,,
Ordinary Bran	£7	0	0	,, ,,
Broad Bran	£7	12	6	,, ,,
Maize Meal	£9	7	6	,, ,,
Plate Pollards	£7	0	0	,, ,,

All in London, and, if you add the charges I mentioned above, you will find the prices J. R. S. paid are not only reasonable but very low.

As many of my customers are (like myself) regular readers of "Eggs," I shall be glad if you can see your way to publish this letter. Thanking you in anticipation,

Yours, etc.,
F. J. RUCK.

MR. HANSON'S SCHEME.

To the Editor of "Eggs."

Dear Sir,—Having been connected, for the last twenty years, with the handling of that particular feature of poultry which has special reference to Mr. Hanson's scheme—i.e., the marketing and disposal of the **dead** bird—may I be permitted to express my views in regard thereto?

The problem originally propounded by Mr. Hanson was, briefly, as follows:—

If poultry farmers are now obtaining from 5d. to 1s. 3d. each net for their surplus birds during certain periods of the year, can a co-operative scheme be inaugurated which will enable them to receive something like 1s. per head more?

The answer is, I think, a decided "Yes."

Before giving the reasons which have led me to this conclusion, and stating the broad lines upon which this desired result can, in my opinion, only be achieved, it might be well to consider the situation as seen from the disposer of this surplus produce.

I have followed the whole of the correspondence, and I believe I am correct in saying that no one has dealt with the view-point of the Commission Agent, or other dealer, who has to find an outlet for the very numerous live birds he receives during the summer months.

Lest I be misunderstood, let me add that I am not a Commission Agent, but I have in past years bought in sufficiently large quantities to necessitate a careful study, not only of the London markets, but those of the large Provincial towns, as well as certain Continental markets.

In passing, I have lately examined the books of a retail poultry store in a provincial town, in order to ascertain whether the very large difference in the selling price, with the figures mentioned above, pointed to the retailers obtaining more than a legitimate profit.

This was what I found. Birds bought in the summer months in the open market worked out at an average of 1s. 1½d. per lb. Birds purchased within the last month cost 1s. 3d. to 1s. 6d. per lb. I might here explain that a progressive dealer purchases in the summer months, and cold stores his birds for disposal when supply is short. The cost of cold storage to date averaged 1½d. per bird.

Clearly, in the case in question, the dealer had not been fortunate enough, as he expressed it, to buy his summer birds at 2d. to 4d. per lb. (vide second paragraph above).

The trouble, therefore, must be sought in the link, or links, connecting these two—i.e., the original producer and the retailer.

Let me state what I consider is the average viewpoint of the Commission Agent, who is responsible for returning the inadequate prices quoted above.

In the first place, during a few months of the year, he receives whether he likes it or not, a marketable commodity in an **unfinished** state. He wants the birds in the condition in which he has to sell the bulk of his supply—i.e., **dead.** He receives them **alive.** Therefore, provided he cannot immediately get rid of them—and he cannot in the glut months—he must needs provide adequate accommodation for live stock (which means an infinital more costly arrangement than for dead stock), an expert staff of killers, and the provision of food. Alternatively, he must dispose of the birds to those who undertake this work. As is well known, the birds he receives are mostly in poor condition—that is, the frame is there, and, may be, size, but the "filling out" is absent. Imagine trying to fatten birds with the prohibitive London and Provincial overhead charges!

Again, there is no attempt made at grading the birds (I think this a most important point), but naturally this cannot properly be done until one can see the finished product. Consequently, rightly or wrongly (and chiefly wrongly), the producer receives the price of his worst bird for the whole consignment. That price is dependent upon: (a) The condition of the birds (generally judged by the worst); (b) supplies available; and (c) the demand for this **unfinished** product.

No scheme can succeed if certain inherent drawbacks of the present system are perpetuated. Some have been mentioned; others are dealt with in the following outline of the factors which should achieve all that Mr. Hanson desires in his public-spirited effort to get rid of the present unsatisfactory state of affairs from the producer's viewpoint.

In such scheme there should be:—

1. Organisation and regulation of supplies.
2. A rigorous grading of birds, both for weight and "grain."
3. Present method of packing discarded, and the, infinitely superior American system adopted.
4. All bye-products utilised; they can be!
5. Management by one with expert knowledge of the technical side, and also expert knowledge of factory organisation—i.e., efficiency methods on the large scale.
6. As large a capital as can be procured.

In amplification of these factors—

No. 1 would, in part, be achieved by Mr. Hanson's scheme. Further, the provision of cold storage facilities would enable a certain number of birds to be held back for the time being, if a close study of the markets showed this to be desirable. Additionally, some proportion of the whole should certainly be cold stored for marketing at those periods experience teaches that higher prices will rule. Why over-supply Leadenhall and Smithfield? Every large town has its poultry market.

No. 2 is a matter for the expert.

No. 3. I am convinced—and the perusal of various criticisms of the scheme strengthen that conviction—that packing is an essential feature, and must be very greatly improved.

No. 4. Not one of the correspondents has mentioned **all** the bye-products such Fattening Station would have at its disposal, and their, collectively, very large intrinsic worth.

No. 5 is self-evident.

No. 6. The amount of birds dealt with would only be limited by the amount of capital available. Such capital should be more than the only tentatively suggested, I think, £5,000.

The initiation of the scheme should be in the form of a limited liability company.

The subscribers would contribute the capital in the form of £1 or more per 100 head of stock for disposal. As very many more birds would possibly be available than the station could deal with in its initial years, supplies would be rationed according to the amount of individual capital subscribed per (say) 100 head of stock. The birds would be provisionally paid for on a flat rate, and careful identification and record would show the final profit received for each.

As prices vary at different times of the year, a monthly profit and loss account could be prepared of the birds disposed of in that period. This profit shown would form a percentage figure for the final P. and L. account debit balance, and, in consequence, the sender of the bird in better condition would receive a larger addition to the provisional amount paid.

The necessity for some such scheme is amply demonstrated by the figures for Smithfield Market for Poultry and Game received—the former is not given separately—for the first nine months of 1922 and 1923.

Whilst British supplies have decreased, the Foreign percentage to the whole has advanced considerably. One has only to see the difference in the grading and packing of the latter to realise how far behind the foreigner the British producer is in this respect; vide American-cased chickens:—

	1922.	1923.
British and Irish	7,556 tons.	6,733 tons.
Foreign	2,767 tons.	3,695 tons.

Yours truly,
EDMUND SCHOLES.

Leysbourne, Campden, Glos.
26th December, 1923.

CO-OPERATIVE FATTENING AND BUYING.

To the Editor of "Eggs."

Dear Sir,—With reference to Mr. Haward's letter in your issue of this week, re Co-operative Fattening and Buying, I notice he states, with reference to the Light Sussex, "That breeding for eggs has reduced the table qualities, and that it is now only second-class." This is of course, quite untrue. The Light and Red Sussex are still pre-eminent as table birds.

I feel that I can speak with some authority on the subject, having specialised in the Lights for many years, and having had considerable success in laying competitions, I can state definitely this has been done without any loss of size. My birds are as large, if not larger, than they were ten years ago. No sensible breeder is going to spoil the table qualities of the breed. Of course, when a breed becomes as popular as the Lights, a certain amount of abuse steps in. But I can honestly say, that in Sussex at any rate, there is no sign of any falling off in sixe or any other of its qualities. It remains the best utility bird, and is likely to do so for many years.

Yours faithfully,
P. B. ADAMS.

SEX SEGREGATION.

To the Editor of "Eggs."

Dear Sir,—I read with interest your summary of and comments upon Mr. Edward Kellett's article in "Poultry." I notice that he says, according to your summary, that "embryonic eggs are made up of millions of cells."

In embryology, of course, most of us have to trust to other people's research, and therefore it is up to us to test every step as far as we can. I therefore, desire to point out that the late Professor Ernest Hackel, in his monumental work "The Evolution of Man," distinctly states: "When we examine a very young ovum in the hen's oviduct, we find it to be a simple, small, naked, amoeboid cell, just like the young ova of other animals." (Chapter VI.)

Hackel's standing in embryology is beyond dispute. I am not claiming that this disproves Mr. Kellet's statements, but at all events it does shake faith to find him starting with an error.

Yours,
A. E. JACOMB.

EARLY HATCHING.

To the Editor of "Eggs."

Dear Mr. Newman,—I want to write and thank you very much for your help and your excellent articles in this week's "Eggs."

For the last four seasons, following your advice in "Eggs," I have started hatching Light Sussex the first week in January, and am doing so this year. The January and early February birds are always the finest and best-grown birds. They start to lay in July and August certainly, and generally go into a **neck** moult in November, but start laying again the second week in December; but during this time the late February and March hatched birds have taken up the running. The January-hatched pullets always lay the biggest eggs and the most, and their chicks the next season have been my strongest. I feed your own mash, and mixed wheat and kibbled maize as grain till full grown.

All my birds have now been fed on your mash for four seasons, and I commenced feeding kibbled maize only as grain feed last winter, and have undoubtedly increased my egg supply and size of egg. I find the birds do better on it, and come through the moult better. I have about 1,000 laying hens, and try to rear 500 pullets each season, and not having a very big rearing plant, if I did not start hatching early first week in January, I should never get 500 pullets by the end of March.

Again thanking you for all your help in "Eggs,"

I remain,
Yours truly
MARGARET MUNTZ

DRY MASH FEEDING.

To the Editor of "Eggs."

Dear Mr. Newman,—The question of Dry and Wet Mash appears to be one on which strong views are held on both sides.

It may interest you to know that I have followed your dry mash formulas for some years, and the results have been most satisfactory. My mash is made up of bran, toppings, S.G.O., maize meal, and fish meal only, in the proportions recommended by you, and my egg records are, I consider, very satisfactory.

Several of my 1921-hatched pullets laid over 240 eggs in their first year, many of the 1922 pullets have done even better, and one of them, a White Wyandotte, has laid 308 eggs in twelve months. She lays a lovely brown egg of good shape and texture, and over 2 oz. in weight. She, like all my birds, was brought up on your dry mash formulas. This, of course, does not "prove" that dry mash is better than wet. Others may have done just as well, or perhaps better, on wet mash, but I do think that it proves that birds thrive and produce well on your dry mash.

Yours faithfully,
STANLEY TOMKINS.

DESCRIPTION OF SMALL PLANT.

To the Editor of "Eggs."

Dear Sir,—In your issue of Dec. 12th you have an article under the heading of "MY SYSTEM," page 400, which suggests that many small poultry-keepers have been asleep, or else have failed to grasp even the thin edge of your correspondent's success.

May I ask him, through you, to carry on his explanations and furnish our small keepers with a sketch plan of his holding of one-sixth of an acre, and give us a few more details of his wonderful results, and further, whether he would allow a fellow member to inspect his holding at a time suitable and agreeable to himself?

Yours faithfully,
A. WIGGINS.

Utility Duck Club Notes.

By H. B. CARRINGTON.

Those readers who were unable to visit the U.D.C. Stand at Olympia in the middle of December may, perhaps, like to hear something about what happened there, whilst I should like to take this opportunity on my own behalf, and on that of the Council, to thank those who helped either by gifts of eggs or otherwise, who may not have received a personal letter from me, though I sincerely hope that everyone will have had an acknowledgment of help given.

Judging from the number of people who visited the Stand, the number of new members who joined and the number of eggs sold, I think it may be said that our first venture in this direction was a real success.

The most encouraging result was the number of new members who joined, which, I think, proves that the popularity of ducks is very much on the increase, and that the Club is really helping duck-keepers to be successful in keeping them.

In a different direction the number of duck eggs sold was equally encouraging, for it proves, without the shadow of a doubt, that there is a public which likes duck eggs, and that a market should easily be secured for the producer.

The opportunity cannot be lost here of urging upon all duck-keepers the need to market their eggs in perfect condition. The exhibits of eggs on the stand were very much admired, and there was good reason for it; people were drawn to look at them, their size and cleanliness could not fail to attract attention.

Let me repeat **size and cleanliness.** These are the essentials, apart, of course, from freshness. If the producer will give his retailer something which will attract attention when nicely arranged in his window, it will mean bigger business for the retailer, bigger business for the producer, and it will create and stimulate the demand for duck eggs.

There are perhaps some who have lately taken up ducks in whose minds doubts may be accumulating about finding a market for their eggs now that their birds are coming on to lay. Let them look up the leaflets on the subject of marketing duck eggs, and I think they will find some useful tips, but, above all, let them remember SIZE and CLEANLINESS. A dirty egg, even a stained one, suggests staleness! The public is critical and not easily put off; therefore produce a good thing, for a good thing always sells itself.

There is rather a busy time for me during the next two or three weeks whilst the Year Book is in the Press, and these notes will, therefore, be very brief, but there are one or two points still to be mentioned.

The breeding season is upon us, and perhaps a hint or two will not be amiss to those who have not had much experience.

The breeding pens should be well provided with green food; this will be found a considerable help to early fertility. For some reason or other people seem to forget that ducks need green food quite as much as chickens. It is an essential part of their diet, and best results cannot be obtained unless it is provided.

Then about Drakes, if there are more than one in a pen make sure that they agree, for it is good-bye to fertility if they do not.

One more tip, which must really be the last. Do not be in too great a hurry to take eggs for sitting from the young birds, allow the ducks to mature thoroughly first, and do not set under-sized eggs. Immature parents will produce weakly ducklings not worth rearing, even if they consent to live. Disappointment and annoyance will be the only result of neglecting this advice. Having made the mistake myself, I do not hesitate to admit it, and can only hope that others will profit by my confession of foolishness.

With sincere good wishes for a really prosperous New Year to all members.

APPLICANTS FOR MEMBERSHIP.

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Ward, T. Leonard, Cokhay, Lepton, Derbyshire.
Wallis, E. E., 59, Lower Park Road, Hastings.
Dawson, J., Princes Street, Metheringham, Lincoln.
Houcher, Capt. J. B., Crossglades Appliances, Wormley, Godalming, Surrey.
Marshall, E., Hill Crest Poultry Farm, Hailsham, Sussex.
Bullivant, Mrs. Stanley, Hawkwell Place, Pembury, Kent.
Smith, Geo., Club House, Wootton Manor, Henley-on-Thames.
Smith, G. E., Horton Terrace, Botley Road, Romsey, Hants.
Cooke, Harold, Leylands Road, Burgess Hill, Sussex.
Amsden, E. W., Roughets, Sevenoaks, Weald, Kent.
Gray, Chas., Barton Court, Abingdon.
Thurrell, W. A., 21, Terminus Road, Eastbourne.
Binns, E., Bricklyn Poultry Farm, Brandon, Suffolk.
Hawley, Leslie, Bron Dinas, Mellish Road, Walsall.
Danvell, S., Fair View, Haddon Road, Chorleywood, Herts.
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Darch, J. E. H., 18, Franklin Road, Westham, Weymouth.
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Chapman, A., Mill House, Straffan, Co. Kildare.
Pawling, T. C., c-o Messrs. Williams and Mees, Kings Weir P.F., Wormley, Broxbourne, Herts.
Boyd, J. H., Meadow Grove, Hightae, Locherbie.
Bretherton, Roy, The Willows Poultry Farm, Formby, Lancs.
Craigie, Tom, Thorpe Nurseries, Almondbury, Huddersfield.
Galway, J. M., J.P., Abutus, Farnham Road, Bangor, Co. Down, Ulster.
Price, G. B., The Croft. Gurney, Farringdon, Nr. Bristol.
Balmer, Mrs., The Haven Poultry Farm, Crowe Lane, Romford, Essex.
Harton, J. G., Monteviot P.F., Barkham Road, Wokingham.
Cardale, Com. E. L., R.N., Hingston Cellars, Bigbury-on-Sea, S. Devon.
Glenny, Miss G. M., Billhurst P.F., Wood Street Green, Guildford.
Nicholson, A. J., Red and White P.F., Stone Lane, Kinver, Staffs.
Jones, R. G., The Firs Poultry Farm, Cemaes Bay, Anglesey.
Edmondson, T. R., 22, Aysgarth Avenue, West Derby, Liverpool.
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Shewan, A., Corvichen, Huntly, Aberdeenshire.
Patterson, Maj. J., 26, Watling Street, Canterbury.
Lea, H., Ten Oaks, Ringwood, Hants.
Case, Maj. C. F., Manor Farm, Cockthorpe, Wells-next-Sea, Norfolk.
Skinner, J. J. T., Grove Park, Stratton, N. Cornwall.
Gurney, G. F., Daniel Farm, Laindon Station, Laindon, Essex.
Sims, J. C., Khyber Cottage, Sutton-on-Sea, Lincs.
Wilson, W., Stockwood, Nr. Redditch, Worcester.
Cureton, A., Market Place, Shifnal, Shropshire.
Williams, C. A. Wynn, Woodfield House, Lockwood, Huddersfield.
Lewis, Wm., 171, B. Dill Hall Road, Church, Lancs.
Wells, A. J., Spring Cottage, Bargate Lane, Dedham, Essex.
Morgan-Atkinson, Mrs. J., Kilmarnock, Campile, Co. Wexford, Via Waterford.
Doult, H. T., " Cevenna," Hall Road, Bushey.
Bolton, Mr., Prospect P.F., New Moston, Manchester.
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Windsor, Rev. A., Highfield, Hebden Bridge.
Thomson, Allan, Gowanbank, Avonbridge, Scotland.
Crowther, Mr., Higher Thadsworth Farm, Blackburn.
Bowers, A. N., Manor Drive, Hartley, Nr. Longfield, Kent.
Bailey, A. D., Red House Poultry Farm, Snape, Suffolk.
Hallwell, J. F., Pitts Farm, New Moston, Failsworth, Nr. Manchester.
Chaplin, R. W., 1, Manor House Street, Peterborough.
Bird, L., Birds-Fancy, Kongens Lyngly, Denmark.
Castleden, G. L., Banham, Attleborough, Norfolk.
Bolsover, Jas., Leighs Lane Poultry Farm, Wilmslow, Cheshire.
Winter, A. A., 42, Thackeray Road, Portswood, Southampton.
Prideaux, Capt. P. M., The Briars, Hookpit, Kingsworth, Nr. Winchester.
Gray, Martin, The Chestnuts Poultry Farm, Longlevens, Nr. Gloucester.
Laurence, Miss M., Tibberton, Glos.
Herrington, E. J., " Thaba'Nchu," Naze Park, Walton-on-Naze, Essex.
Daniell, Mrs. E. M., Burton Farm, Chippenham, Wilts.
Foulds, Thos., Colomendy Poultry Farm, Cannahs Quay, Nr. Chester.
Smith, R. C., 30, Westmoreland Road, Bromley, Kent.
Campkin and Glenny, Messrs., Billhurst Farm, Woodstreet Green, Guildford.
Keech, M., The Hermitage Poultry Farm, Nr. Market Harboro'.
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Scott, T. W., Millbrook Lodge Cottage, Millbrook, Southampton.
Davidson, Mrs., Hillhead, Heathcot, Banchory, Devenick.
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RHODE ISLAND REDS.—Major Robert Lethbridge, Broomhill, Tiverton, whose stock has done well in recent laying trials and utility shows, offers Pedigree January, February, March, 1923, Utility Pullets, laying, from trap-nested hens; records 200 to 285, by 284, 291, 302 egg males; from 10s. to 25s. each. Particulars on request. Only one breed kept.

WHITE WYANDOTTES, 60 Excellent February hatched Pullets, in full lay. Birkett and Cam strains. Also Breeding Pen: Four Fine Cockerels and One Cock. A grand lot; in perfect condition. Marmite fed. Accommodation required for Light Sussex. Write for details.—Major Everett, Castelmer, Kingston, Lewes.

SILVER CAMPINES. Sixteen April 1923 Pullets; bred from 200-egg flock. Healthy. Laying. 10s. each, or £7 the lot.—H. Lea, Ten Oaks, Ringwood.

Early hatched 1923, January and February; LIGHT SUSSEX (Lister-Crawshay), RHODE ISLAND REDS (Golden-Measure's). All healthy pullets, through the moult, and just commencing to lay again. Room wanted. Price 8s. and 10s. each. Catalogue on application.—Gordon R. Smith, S.P.B.A., N.U.P.S., Derwent House, Drigg, Holmrook, Cumberland.

PULLETS, 1923.

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Pedigree White Leghorns

Only the Finest Fully Trap-nested Stock kept.

On Successful Rearing.

The wisdom of early hatching being undoubted, one's thoughts naturally turn to the question of provision for the rearing of our chicks and ducklings that will be making their appearance in the New Year. Now it is evident from the many letters and articles that have appeared in the Poultry Press recently, that greater success may be attained by rearing in small units of up to about 100 chicks or ducklings than in larger numbers, and the consensus of opinion of leading breeders and experts favours such a method. The reason is not far to seek. Control is simplified, risk of mortality is greatly lessened, and there is greater immunity from disease. For rearing in these small units there are two methods available. The first is with one or more hovers, each in its own house, or in ranges in the large brooder house, each unit being divided from the other. The second method is with the self-contained brooder. Taking the Hover first, in the Chalet Ideal D-E Super Hover, the latest invention for which provisional protection has been granted, and full patent applied for, I believe that perfection has at last been attained. It is a combination of the skill of the metal craftsman, with the knowledge and experience of the pedigree breeder. The requirements of an ideal hover are that it should be constructed by those who are skilled in the making of poultry appliances, that it should be practically indestructable, that it should be fire-proof, that the heating apparatus should be entirely separate from the chick and duckling compartment, that it should be absolutely fumeless, that the heat should be deflected from above, the temperature easily controllable, and that the minimum attention should be required. Every one of these features is embodied in the Chalet Ideal D-E Super Hover. But that is by no means all. Poultry-keepers, who are accustomed to rearing youngsters artificially, whether in hundreds or in thousands, know full well one of the greatest causes of mortality has been through the chicks or ducklings leaving their shelter at some time or other, straying to some cool corner, and crowding there, dying either from suffocation or later from a chill. In such a way any number from one to a dozen or more may be lost in a single night. Is there any poultry-breeder who has never experienced this? The danger is entirely obviated with the special flexible extending Protector Guard of my own design. For the first few days the youngsters can be kept in the desired confined space secure from chill and floor draught, and with no possibility of straying. As growth progresses this Protector Guard can be gradually extended to a circumference of some 12 feet, within which circle the youngsters can be fed and watered. The construction of the Chalet Ideal D-E Super Hover is of such extreme simplicity that no diagrammatic or other illustration is necessary. All that it requires is a slight attention to the self-contained outside lamp chamber once daily. Even if that is forgotten there need be no mortality, as the heater is so constructed that it has (under test) run for some 48 hours with one filling of oil. Both the Hover and the Protector Guard are made of the finest galvanised steel, and the necessary heat is so generated and deflected that Nature's methods are almost entirely copied. I shall not be surprised if, on account of its simplicity, its following so closely the ways of nature, its safety, and its reliability, this Hover eventually displaces all others, and is generally adopted by breeders throughout the country. It is sent, complete with the flexible steel Protector Guard, securely crated, carriage paid, to any station in England and Wales, for £2 17s. 6d., and to Ireland and Scotland, etc., 10 per cent. extra. There is certainly no Hover on the market so perfect in construction and so safe and reliable in use at any price approaching this.

Now we come to the second method, that of rearing with the self-contained outdoor brooder, and for this method my own experience and that of many other breeders points to my Chalet Ideal Brooder as being one of the most satisfactory in every way that has ever been devised. Admirable for chick rearing, the Chalet Ideal Brooder is almost indispensable for those who wish to rear ducklings successfully. Unlike many types of Foster Mothers, the 100 size of which may accommodate from 50-70 youngsters, the Chalet Ideal Brooder is constructed to rear 100 chicks to a good size, the large separate compartments being specially adapted for that purpose. The inner heated chamber is perfectly ventilated, and whilst the necessary warmth is supplied, there is a constant circulation of pure fresh air, enabling the youngsters to enjoy comfort under all conditions of weather. At a later stage this inner heated chamber can be removed (rendering the purchase of a second or cold brooder unnecessary), and it is then immediately available for further rearing in any small house, shed or outbuilding. The outer brooder is now a rearing house for the growing chicks in which they can remain almost up to the time of removal to their laying quarters. But that is not all. For ducks, no other house is really necessary at all. I have reared ducklings in my Chalet Ideal Hover from the time they have left the incubator right on to their breeding stage, and have found what I might call this convertible house invaluable for such a purpose. The Chalet Ideal Brooder is constructed of the finest materials throughout; the whole of the interior is covered with a special water paint, and the outside treated with two coats of the best preservative. The roof slides, instead of being hinged, facilitating and simplifying to the utmost attention to the birds, and it is covered with the best bitumen felting and securely battened. The outer or scratching chamber has, in addition to a large fine mesh wire covered opening a glass shutter, which is adjustable to all conditions of weather, and can easily be removed when necessary. With its extending handles, my brooder is perfectly easy to remove from one ground to another. Last season in the Chalet Ideal Brooder I reared up to 100 per cent., and at the moment of writing I have a splendid batch of healthy and sturdy little Rhode Island Reds, abont three weeks old. Since hatching we have had variations of temperature from about 14 degrees below freezing up to that of a warm spring day, but despite that the youngsters have made excellent progress, and there has not been a single casualty. The Chalet Ideal Brooder is sent carriage paid to any station in England and Wales for £7 5s. and 10 per cent. extra to Scotland, Ireland, etc. I am just delivering 12 to one client, who has seen them in operation on my own plant, which is some proof of their value and suitability..—A. Harold Paine (Member of the leading Poultry and Duck Clubs), The Chalet, Burgess Hill, Sussex.

The Choice of a Breed.

A. HAROLD PAINE.

Before I decided to specialise in Rhode Island Reds, I tried out thoroughly five different breeds—three lights and two heavies—each one of which was held in high regard by poultry-keepers generally. The stock I purchased was the best obtainable, and from breeders of repute. Results from the light breeds were, to say the least of it, disappointing. They laid moderately well certainly, but almost throughout the seasons the eggs were hardly to standard size. One breed which produced most eggs laid them when eggs were cheap. The surplus cockerels were of very little use for table, and were invariably sold at a loss, in some cases not even 1/- per bird could be obtained. One of the heavy breeds laid exceedingly well, but the percentage of under-weight eggs was too high for my liking. The fifth breed, the Rhode Island Red, more than came up to my highest expectations. The birds were hardy, full of stamina, quiet and tractable. They laid large richly-tinted eggs the whole year through, both fertility and hatchability were exceedingly good, and the progeny reared with a minimum of loss. But it was the young cockerels that added considerably to my revenue. They were in great demand, and at 2/6 and over per pound were a very profitable proposition. Undoubtedly the R.I.R., as a dual-purpose bird, is unique amongst all breeds. Here is the proof of what my birds can do. It is a letter from A. J. Bell, Esq., breeder of pedigree R.I.R.'s, I.R., and K.-C. ducks, Longwick, near Princes Risborough, Bucks. He writes:—"The following gives the performance of the pen of six R.I.R.'s I had from you last year. Their egg record from 7th November (the day they arrived) up to to-day, 6th November, 1923: From the 7th November, 1922, 72; December, 119; January, 1923, 115; February, 125; March, 141; April, 143; May, 153; June, 138; July, 114; August, 129; September, 111; October, 98; to November 6th, 1923, 8. Total for twelve months: 1,466. Average per bird, 244.3 eggs. All except about half-a-dozen eggs in November, 1922, were over 2 ozs. Fertility was about 95 per cent., the progeny are fine in colour, and from their early performances look like making finer layers." Whilst comment may be needless, the consistent laying of these birds is certainly remarkable. Further, it is interesting to note that these figures exceed by many eggs per bird any record attained by any breed entered in the Bentley National Laying Tests, even after making full allowance for the difference in duration of period. Much has been written, and a great deal more could be said of the value of the Rhode Island, to both the small poultry-breeder and the commercial egg farmer. I have early-hatched cockerels, pullets and hens, closely related to the birds, whose records are given above, from 21/- each, and specially mated pens from five guineas. Excellent as are the achievements of my World Record Rhode Island Reds, my Ducks even outdistance them as layers. This year my clients have reported averages up to 299 eggs per bird. A beautifully illustrated list, containing information of much value to breeders will be sent free on application to A. Harold Paine (Member of the leading Poultry and Duck Clubs), The Chalet, Burgess Hill, Sussex.

EG

Wednesday, January 9th, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

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Edited by TOM NEWMAN.
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L2 breeding stock.
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TESTIMONIAL.

May 9th, 1923.

With reference to the 500 Chicks supplied by you early last month, I am sure you will be interested to know that they have done very well, and up to now, they are about five weeks old, I have had very few casualties.

R. BRETT.

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FREE ON APPLICATION.

Modern Poultry Feeding

By TOM NEWMAN.

Rearing in Relation to Nutrition—
The Wellingham . . . . . Experiments

(A reprint of a paper read at the Poultry Conference at the Harper-Adams' Agricultural College).

The SECRETARY,
S.P.B.A.,
RUDGWICK, SUSSEX.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, January 9th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

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Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone : HOP 894.

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EDITORIAL.

50,000 HEN FARMS.

We have no desire to prolong the controversy on this subject, but as Mr. Jacomb in his last letter asks us some definite questions, it is possible that if we did not attempt to answer them we should be accused of trying to evade them.

He says he has "tried to show that on the larger concern there is more opportunity of adopting a division of labour and a lower strata of labour, these things make for cheaper production; it is significant that neither you nor anyone else tries to shake that evidence." But isn't Mr. Jacomb incorrect in calling this evidence. He has merely made an assertion which he is not in a position to prove. Presumably he will admit you can employ a higher and a lower strata of labour on a 1,000 hen plant, the owner, and a boy for cleaning out, feeding, and other work of a kind which does not require skilled labour. There can be only two stratas, skilled and unskilled, and there is no evidence that he can do with less on a 50,000 hen farm.

He admits that he cannot prove that a 50,000 hen farm can produce a cheaper egg than one of 5,000, but asks, *"why we do not take the 1,000, which we hold will be the typical unit of the future."* That is hardly to the point. It is understandable that you may buy food for 5,000 hens more cheaply than you can for 1,000, but there is a limit to this, and our point was to show that there was a limit beyond which these mammoth concerns could offer no advantage either in labour costs or in cost of feeding, etc. We agree that a plant of 2,000 may possibly be able to produce a cheaper egg than one of 1,000, and a 5,000 plant cheaper, possibly, than one of 2,000, but after that we cannot see where the advantage lies. We hold that the difficulty after this will be one of control.

Let us turn for one moment to Mr. Fred Fielding's article, that is the land of mammoth farms. He knows of only one 50,000 hen farm, AND THE OWNER DOES NOT REAR A SINGLE CHICKEN. HE BUYS ALL HIS STOCK AS LAYERS. Add to this the fact that birds over there are run at the rate of 1,000 to 1,500 to the acre—an impossibility in this country, and owing to climatic conditions, there are no dropping boards. We have not been able to find a single case of a 50,000 hen farm on which the owner rears his own stock. Mr. Fielding estimated that for a flock of equal size in England, from two to three times the labour would be required.

Even with Californian conditions, where owing to the favourable climate and soil, very large flocks can be run on a small area, Mr. Fielding is of opinion that the 15,000 hen plant is about the limit to practicability.

If Mr. Jacomb did not try to prove that a farm with 2,000 hens, and a flock average of 170, did not show four times the profit with one at 200, we very much regret that we failed to understand him, and still fail to understand him, and if he did not imagine difficulties in one case, and "calmly assume that everything would run smoothly in the other," how are we to understand what he means when he says, "Now, to raise a flock of 200 eggs is going to be a tremendous task, and is not going to be attained for nothing. The average value may be 5s. and extra costs in the way of food, greater losses, extra labour of handling, etc., would probably amount to 2s. 6d. When the dizzy height of 200 eggs is reached, the total gain would be 2s. 6d., or £125 for 1,000 birds. That is the increase on one man's labour, *all things being constant.*"

Now in this case he has assumed the greater losses, and although we admit he has not said that 200 eggs is an extreme, he has surely implied as much when he assumes these additional losses. We suppose he means increased mortality.

Further, he admits that the mammoth farms can only maintain their average of 170 by selective breeding, yet he permits in his argument the man in charge of the 2,000 hen farm to maintain it without selective breeding, or, at least, he makes no mention of additional labour for the purpose. We are trying not to do him an injustice. He charges "greater losses and extra labour for handling" in the case of the two hundred average, but he makes no charge at all in the case of the 170 average, at the same time admitting the necessity for selective breeding, and he shows that he will make a profit of 8s. per bird on the first 1,000 in the latter, as in the first case, as all the expenses would be the same as the first 170, except the labour. He adds: "On this account the saving would be 4s. per head on the second thousand birds. This, with the 8s. per bird profit, as in the first case, would be 12s. on the second thousand, 12,000s.—£600 per man, as against £125. Again we suppose everything to be unchanged." True, he adds, that the figures were only given to illustrate his point, but he also adds "Whatever figures are taken they serve to illustrate in which direction the future lies." What he is endeavouring to show is that the large man looks to achieve his end by reducing labour, and the small unit man by increasing production. He asks: "Which is likely to be the soundest way? Let us do a little arithmetic." We are not conscious of any omission in these quotations which would affect his case, and we, therefore, do not see why he should say it was untrue when we remarked that he had tried to prove that a farm with 2,000 hens, and a 170 egg average would show four times the profit of one with a 1,000 hen, and a 200 egg average. We are, no doubt, very dense, but we fail to see the point. He has made one very serious omission in his calculations, he has not allowed for selective breeding to maintain that 170 average, and we say that it can be *attained*, but not *maintained without it*.

We must leave the question as to whether the 200 egg average will in the future be only worth what the 170 is now. Surely that will depend on the future demand, and the demand will depend on factors which we cannot foresee. In a country which imports so many eggs as this, and which for eight months of the year, at least, is short of home produce, we should rather doubt his assertion.

With Mr. Jacomb's reply this controversy must now close.

Modern Poultry Feeding.

By TOM NEWMAN.

THE BY-PRODUCTS.

Turning to the by-products of the cereal grains, we have first WHEAT BRAN. The value of this has been questioned during the past two or three years. In the main, I think this is due to two causes. The fact that the BROAD BRAN, which we used in the pre-war days, is now practically unobtainable; and it should be remarked here that much which has been, and is, sold as such, is nothing but ordinary bran passed through the rollers twice and flattened out. In passing I may say that a good sample of broad bran has always some of the flour adhering to it, and the inside of the flake should be white. The broad bran has a lower fibre content than the common bran, a somewhat lower percentage of crude protein, and more carbohydrates. Its value lies in the fact that it gives the necessary bulk to the mash, acts as a slight stimulant to the digestive organs, assists to build up a sturdy frame, and is a very palatable food. It is especially valuable with young chicks when fed dry, as owing to a phosphorous bearing compound called phytin, it has a mild laxative effect, and will prevent the common forms of diarrhoea with young chicks. Bran is less digestible when scalded.

WHEAT MIDDLINGS vary in quality from what is known as Red Dog Flour, to the common or ordinary middlings. The former contains a considerable amount of flour, the latter very little, and are often adulterated with ground over bran. An average good sample contains some flour, bran particles, and some portion of the germ. The flour or white middlings are the best value, containing a considerable amount of low-grade flour, more crude protein, and less fibre. I want to dwell on this particularly, because a combination of low-grade middlings, containing a high percentage of fibre and little flour, with a low-grade bran—consisting, as it does, of 60 per cent. of the mash—is not likely to produce eggs, or even keep the birds in good bodily condition, especially, as is often the case, it is combined with what are called SUSSEX ground oats, and are too often a low-grade oat, sometimes adulterated with oat husk, or else feed oatmeal—sometimes very good and sometimes very bad. It is not a difficult matter to determine a good or bad sample of middlings. Look for the flour, and don't buy coarse brown middlings which resemble fine bran. On the question of digestibility, and Kaupp and Ivey's recommendation that owing to their low digestibility middlings should only form a small part of the ration, I refer you to the Wellingham experiments, where more than 66 per cent. of the total ration consisted of wheat middlings, and the results obtained in the health and development of the chicks have never been equalled in this country, or surpassed in another. It is simply a question of laboratory or a field test, and the latter has proved the more reliable. A good sample of middlings is the most economic feed we have, and should form, at least, 40 per cent. of every mash.

Average composition of GOOD BRAN and LOW-GRADE BRAN:—

Good Bran.—Crude Protein, 15.7; Fats, 4.4; Carbohydrates, 54.2; Fibre, 8.8; Ash, 6.3.

Low-Grade.—Crude Protein, 11.9; Fats, 3.6; Carbohydrates, 51.7; Fibre, 16.6; Ash, 6.2.

WHEAT MIDDLINGS.—Fine or Flour Middlings: Crude Protein, 15.7; Fats, 3.4; Carbohydrates, 64.0; Fibre, 1.8; Ash, 2.4.

Second Grade, Coarse Middlings or Sharps: Crude Protein, 16.4; Fats, 5.0; Carbohydrates, 56.2; Fibre, 5.3; Ash, 3.6.

Third Grade or Pollards: Crude Protein, 14.3; Fats, 4.8; Carbohydrates, 55.6; Fibre, 7.7; Ash, 4.3.

MAIZE GERM MEAL, MAIZE GLUTEN MEAL, and MAIZE GLUTEN FEED are all by-products from the manufacture of starch and glucose from maize, although the germ meal is extracted by a milling process in some cases. It is a much better feed than maize meal, containing more digestible protein; it also contains considerably more oil, and is a valuable feed for moulting hens.

Maize Gluten Meal is very rich in digestible crude protein, but has a low ash content; it is a valuable and very palatable feed. Gluten Feed, although it has a high content of crude protein and a better ash content than the meal, is now so heavily adulterated with maize offals, as to be much less valuable to the poultry-keeper than formerly. Moreover, serious complaints have been received of late as to its causing digestive trouble. Whether this is due to its being packed in a moist state and fermenting, or to the acid used in its extraction, I cannot say, but, judging by the numerous samples sent me, I no longer recommend its use, in fact I advise readers not to use it.

The average composition is as follows:—

Maize Germ.—Crude Protein, 13.0; Fats, 13.5; Carbohydrates, 55.1; Fibre, 4.1; Ash, 27.

Maize Gluten Meal.—Crude Protein, 35.5; Fats, 4.7; Carbohydrates, 47.5; Ash, 1.1; Fibre, 2.1.

Maize Gluten Feed.—Crude Protein, 23.5; Fats, 3.4; Carbohydrates, 56.7; Ash, 2.5; Fibre, 3.5.

MALT CULMS, DRIED BREWERS' GRAINS.—In making malt the barley grains are first steeped in warm water until soft. Then held at a high temperature until they begin to sprout, in which process the amount of diastase, which converts starch into malt sugar, is greatly increased. When sufficient diastase has been formed in the sprouting grain, it is rapidly dried, the dry shrivelled sprouts are then separated from the grain, and marketed as malt culms, coombs or sprouts; the dried grains remaining form the malt. The diastase in the malt converts the starch into malt sugar. This, together with some of the nitrogenous and mineral matter, is extracted, and the residue is sold as wet or dried brewers' grains.

Although both contain a high percentage of digestible crude protein, their fibre content is very high, and their great bulk limits their usefulness. The culms have a high ash content, and are rich in iron. The culms deteriorate rapidly when stored, but the dried grain will store as long as bran. I have used both with success in the following formula —1lb of either Culms or Grains, 1½ each of Maize Meal and Ground Oats, 4 Middlings, and 1 Fish Meal.

Average composition:—

Malt Culms.—Crude Protein, 26.4; Fats, 1.5; Carbohydrates, 45.6; Ash, 6.1; Fibre, 12.6.

Brewers' Grains.—Crude Protein, 26.5; Fat, 6.9; Carbohydrates, 41.0; Ash, 3.5; Fibre, 14.6.

I should add that a very high percentage of the fibre of malt culms is digestible, as it is not woody fibre. This is not the case with the dried grains.

OUR FRONT COVER.

Mrs. Athol Stuart, whose photograph appears on our front cover, is a keen breeder, exhibitor and exporter of Pedigree Utility Poultry.

Her farm at Boxmoor, Hertfordshire, is situated on the Chiltern Hills, and is over 300 feet above sea-level, in a very wind-swept and exposed position. The breeds kept are: White Wyandottes, R.I. Reds, Light Sussex, Black and White Leghorns, and White Aylesbury Ducks.

Mrs. Stuart has been very successful in showing, and won the 1st at Enfield, 1st at Chester, and 2nd at Tenbury with a Light Sussex Cockerel, and has been successful on many other occasions. Winning First and Special for best male in show at Street with a R.I.R., First at Bingley, 2nd Poulton-le-Fylde, 3rd Olympia, 1st Shrewsbury, etc., with White Wyandottes, with a son of 264 large-egg hen. She also was very successful with White and Black Leghorns.

Special attention is paid to the stamina and health of the flock. No case of Roup has ever been known on the farm, and all the breeders are tested against B.W.D.

Mrs. Stuart personally attends to all business, and writes to all her customers personally.

Post Mortem Examinations.

By HAROLD LEENEY.

At this time of year, when we are most disposed to review our failures, and make pious resolutions, it may be worth while referring to the examination of dead birds made during the six months in which the task has been mine. A dual system has been carried out with a measure of satisfaction, but there is some confusion in the minds of members, and this they attribute to the faulty instructions rather than to any default on their own part.

When reports are to appear only in "Eggs," the results of the p.m. are not communicated by post. Delay is inevitable. Perhaps an example will better explain the disappointment experienced than any other way of putting the matter before readers. A member sends a body on a Monday of any week. It reaches me some time on Tuesday, is dealt with, and a report sent to the Editor, who gets it on Wednesday. When he has passed it for the press, without a day's delay, the printer sets it up, and the proof-sheet is returned for verification on Thursday or Friday. Now the sender of the cadaver gets his paper on Thursday, and looks to see the reply—which is not there. It can only appear in the following week's issue. It may be eight, nine, or even ten days before he sees the reply, although everyone concerned has kept time like a clock. Every Editor of a weekly is flushed with copy on the last day of publication, because the above indispensable routine is not known to the generality of readers.

The second method is that of direct reply by post. All post-mortem examinations, which are accompanied by a letter, are reported on the same day as received. The value of advice tendered in the case of infectious outbreaks is often to be measured by the time occupied in putting it into effect, and I often make the permissible departure allowed for in the printed instructions, and send a report by post in such cases.

Having received more kind appreciation than my efforts deserve, I am very reluctant to make a list of complaints, but it will be in the true interest of readers if they are respectfully formulated. Carcases are sent without means of identification. Others have labels denoting the names of senders, but the expected letters does not arrive. Letters are received without the nominal fee, which is said to be "enclosed," but is omitted. Writers are numerous whose letters are difficult enough to decipher, but their signatures absolutely unreadable. The letter may be decipherable, but the signatory appears to be under the delusion that he is signing a big cheque, which his banker will recognise, and he would rather that no one else should. This applies, more or less, to addresses, which have sometimes to be cut off and stuck on the envelope in which a reply is sent; thus passing on the difficulty to the post office. "Passing it on" is a thing we all learned in the Army, if we did not know how to do it before. Delay in sending the letter causes delay at this end of the transaction. The waiting subject decomposes, and a diagnosis is rendered more difficult. As an example, one may mention the terrible disease of anthrax, in which the specific bacilli are destroyed by the decomposition organisms. Then there are the busy men who write "Please make post-mortem examination of fowl, and report cause of death"—no word of information to give one a lead. Not in connection with this Scientific Association, but from uneducated readers, I get subjects, whose senders purposely withhold information with a view to testing my capacity to find out what the bird died from. Example: A bird said to be one of several found dead. On opening the mouth I found blood, cleaned the cavity, and found that it had been stabbed through the palate, and killed by the knife entering the brain. I wrote and asked the sender if he stuck the bird with a broad-bladed pocket-knife, when it was dying, and then he admits that he did so, and adds what should have been said at first, that the body of a dead bird was thrown into the yard, and four other birds consumed the contents of the crop, and died.

How do the circumstances of a bird coroner compare with those of a human coroner? Would the latter proceed on such evidence? With every advantage in the way of expert examination, analysis, witnesses, and all the resources at the disposal of the coroner, there are cases in which the cause of death cannot be discovered. Is the avian coroner to be deemed an altogether superior person? That is what the demand amounts to, although I have yet to learn that the public deems the M.R.C.V.S. a greater man than the M.D. or M.R.C.S.

Although senders of subjects for post-mortem examination may do all they can to facilitate the work, there will always be special reasons for misfiring, such as letters left in messengers' pockets, misdirected ones (one gentleman addressed me at the Ministry of Agriculture, and another at the Royal College of Veterinary Surgeons). Another correspondent wrote later, apologising for delay caused by "the inconsiderate conduct of his mother-in-law who had died without preliminary notice." We are all familiar with the charges brought against such relations, but this one does not seem to have been previously scheduled, nor would it be regarded as a great misfortune by all sons-in-law. Diversions, such as elections, births, marriages, and other accidents, stolen packages, etc., contribute to the causes of so much correspondence, which is to me, like Cain's punishment—"greater than I can bear"; were it not for the generous acknowledgments, which are happily far more numerous than the "grizzles."

Post-mortem work is not without its humours, and one wonders what the thief did with a carcase abstracted from a package received to-day, and what did the other one do with a 13 ounce rotten liver sent to the owner of a fowl, "for your information, please."

Between July and the first week in December 587 reports on post-mortem examinations have been made through this paper, but as many of the parcels contained several chicken, the total would exceed a thousand. It is proposed in the New Year to publish all the reports, whether replied to by post or not; as it is thought that subscribers may find some information of value in brief comments on the birds examined. Here's to the health of Members and their flocks!

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

EGG SUBSTITUTES AND EGG POWDERS.

Dr. A. P. Lyster (County Medical Officer for Hampshire), in his annual report, states that a large number of preparations are on the market called variously "Egg Substitutes" or "Egg Powders," and samples of such preparations have been taken in the county area during the past year. Among 28 samples which were purchased, there was no single instance of any preparation which could reasonably be described as substituting eggs in any way as food. The only property which they possess similar to that of an egg is their ability to cause cakes and similar preparations to "rise" and to possess a yellow colour. In every case they were found to consist of baking powder mixed with colouring matter and starch. Such a mixture is in no way whatever a substitute for eggs, and the term, "Egg Substitute" is, therefore, misleading, and is in reality a fraud upon the public. Inasmuch as eggs constitute a most valuable and concentrated food, whereby the food value of a large variety of substances may be substantially increased by admixture with an egg, the deception of the public by the introduction of the word "egg" is a serious one, and likely to lead to defective feeding in young people and invalids.

INHERITANCE OF EGG QUALITY.

The "American Poultry Journal" contains a most interesting article on this subject. I will endeavour to summarise it briefly:—

Curtis and Surface state that the size and shape of the egg were due partly to the structure of the hen's oviduct, which was probably an inherited character. Professor Surface also expressed the opinion that the colour of egg shells was probably added from glands at the lower oviduct, and that it was reasonable to suppose that a function of this kind could be inherited.

Dr. Benjamin, of the Cornell University, began work on this subject in 1911, selecting the following characters: SIZE, SHAPE, and COLOUR. As the breeding test progressed, about 120 females and 30 males were kept each year for the study of these characters. Every egg laid by these females was recorded, and especially detailed records were kept of each egg incubated, for an effort was being made to determine to what extent the quality of a pullet's egg was dependent on inheritance from her sire and dam.

It was found in the case of a dam laying a small egg, being mated to a small egg-bred sire, their pullets produced eggs of even a smaller type.

It was found that the sire would transmit small size of egg to the progeny much more strongly than he would large size. For instance, when a large egg sire was mated to a small egg dam, 35 per cent. of their pullets laid large eggs. When a small egg sire was mated to a large egg dam, 65 per cent. of their pullets laid small eggs.

When a large egg sire and a large egg dam were mated, the average results were 59 per cent. large egg offspring. When a small egg sire and a small egg dam were mated, the result was 82 per cent. small-sized eggs from the pullets.

When a round egg sire was mated to a long dam hen, the result was 45 per cent. long egg progeny; when a long egg sire and a round egg dam were mated, the result was 42 per cent. long. The result of breeding a round sire to a round dam was 50 per cent. round. A long sire to a long dam produced 59 per cent. long.

These figures are averages. They cover a large number of years, and it is concluded that shape is inherited.

Colour of egg shells was also found to be inherited, but more variable than that of size and shape. If both parents had the white-shell character, they were able to transmit it definitely. When White Leghorn females that laid brown tint eggs were mated to a white-egg male, 43 per cent. of the progeny tested "white." When white-egg hens were mated to a brown-egg sire 59 per cent. of the progeny showed the same character as that of the sire.

THE MARKETING OF POULTRY.

I have received the following letter from Mr. Blakesley, of Messrs. Blakesley and Blyth, West Moors, Dorset:—

> "Dear Sir,—I have been asked by a Political Society to prepare a report upon the marketing of poultry produce for table purposes—i.e., the marketing of new-laid and preserved eggs, chickens for roasting and boiling, ducks, geese, turkeys. I hope to make this report as representative as possible of the feeling of all concerned in the poultry industry, and if any of your readers will be so kind as to send me their opinions on the subject—supported, if possible, by facts and figures—from the view-point of either the poultry farmer, the general farmer, the dealer, or consumer, I shall be very grateful.—Yours faithfully,
>
> J. H. BLAKESLEY."

Although we have nothing to do with politics, it is obviously to our interests that the great political parties should have some little acquaintance with our industry, and it is gratifying to see that they attach sufficient importance to it to make inquiries, which they would not have done a few years ago. I happen to know that two of the big parties are displaying more than a passing interest in our affairs at the present time; what will come of it remains to be seen.

ARTIFICIAL LIGHT AND BREEDING STOCK.

The question is often asked as to the effect of artificial light on breeding stock—does it affect fertility and hatchability? The general opinion has been that it has a detrimental effect, but we had no reliable data. Now, Professor Dougherty states: "In hatching tests of eggs set between December 20th and March 20th, breeding flocks that were given artificial light from 5 a.m. till daylight each morning beginning December 1st, gave 87 per cent. fertility and 52 per cent. of all eggs set, hatched. Whereas flocks that were given no artificial light, gave 96 per cent. fertility and 61 per cent. hatchability. It would be interesting had the test been carried still further, and the rearability and vigour of the chicks been observed.

MAIZE FEEDING, THE MOULT, AND ARTIFICIAL LIGHT.

In Mr. Fred Wait's interesting letter on Maize Feeding last week, he wrote:—

> "We are supposed to be progressive, but nobody seems to know what is the absolute cause of the early-hatched pullets moulting after three months' laying, while her later-hatched sister will continue laying for twelve months."

I have suggested more than once that this is due to the fact that she starts to lay at an earlier age, and that is largely a matter of nutrition; she cannot consume enough food for both development and production. Now, Mr. Wait may say this is unsatisfactory, because, why should not a pullet, which is hatched in April, and lays at 5½ months' old, moult as well as one hatched in January and laying at the same age? But take this as another example. A pullet hatched the first week in April and laying in September will have this partial moult; one hatched the third week of the same month and laying in mid-October will not moult. I don't want to lay this down as a hard and fast rule; generally speaking it is correct, and I am, of course, assuming that everything is normal. Now why is this? Is it because the later hatched bird, not being in such hard condition, owing to her spending so much time on the perch, has more reserve of body fat, and so does not get out of condition so quickly when she starts laying. I think it is largely a matter of nutrition, because several of our members who have used artificial light tell me that the early-hatched pullets are not so liable to moult when under the lights, and that if they do so, they are very quickly through it and laying again. One can only conclude that this is due to the extra feed they get when under light.

MISSING FROM OLYMPIA.

Mr. J. S. Fenwick, Burstow, Horley, Surrey, has received a wrong Utility White Wyandotte cockerel back from Olympia. Anyone who has also had a wrong bird returned kindly communicate with the above.

REPORT OF SPECIAL GENERAL MEETING B.O. DUCK CLUB.

A Special General Meeting of the Buff Orpington Duck Club was held at Olympia on Wednesday, December 12th, at 2 p.m.

Present: The Vice-President, Mr. A. F. M. Stevenson (in the chair), Messrs. W. Huntly, C. C. Chittenden, S. Wilson, H. B. Moser, J. K. Lipscomb, Lieut.-Colonel Weston, Capt. H. le B. C. Garfit, the Hon. Secretary, G. C. Heseltine, and a number of members.

The names of the members found guilty by the Poultry Club of faking at Hailsham Show were removed from the list of members.

A resolution to admit *bona-fide* small-breeders to membership at half-rate subscription (3s. 9d.), on recommendation by an existing member, was carried, subject to the proviso that such a small-breeder should be liable for full subscription in the event of his winning a Club Cup or Special.

Capt. S. Wilson announced the anonymous donation of a cup to be won outright at Twyford (Berks, Young Stock Show (1924).

The Secretary announced the payment of life membership subscription by Messrs. Wm. Cook and Sons, and the donation of two guineas to the Cup Fund.

The financial statement, showing a substantial balance in hand, was approved. The proposed revision of the standard was discussed, and a vote of thanks passed to the Secretary, concluded the meeting.

G. C. HESELTINE.

NOTICES.

BATTERSEA MEN'S INSTITUTE, L.C.C., POULTRY CLASSES.

It will be of interest to readers to know the next series of Lectures on Backyard Poultry-Keeping commence on January 9th, at the Battersea Men's Institute, Latchmere Road, S.W.

The series of twelve Lectures will be delivered by Mr. R. W. Baker, M.S.P.B.A., P.C. The Backyarder will be specially catered for. Intending members are asked to be present on the first occasion.

Yours faithfully,
R. W. BAKER.

Correspondence.

50,000 HEN FARM.

To the Editor of "Eggs."

Dear Sir,—In reply to your query, "Can I prove that a 50,000 hen farm can produce a cheaper egg than, say, a 5,000 hen farm?" I have to answer, "No!" I have, however, tried to show that the larger a concern is the more opportunity it has of adopting division of labour, and of exploiting a lower strata of labour-power. These things make for cheaper production. Whether my evidence amounts to proof is not for me to say. The significant thing, however, is that neither you nor anyone else tries to shake that evidence. On the question of food cost, whether the difference was "appreciable" or not, it would be in favour of the larger concern.

But why do you take the 5,000 concern instead of the 1,000, which you hold will be the unit typical to the industry of the future? The 5,000 hen plant is in the category of the 50,000, inasmuch as it is mainly operated by wage labour. Is the fact of you shifting your ground a tacit admission that the mammoth farm can produce a cheaper egg than the 1,000 hen farm? If so, that is enough for my purpose.

It is untrue that I try to prove that a farm with 2,000 hens with a 170-egg average will show four times the profit of a 1,000 hen farm with a 200-egg average. I dealt only with the increased profit arising from the screwing up of the average from 170 to 200 in the one case, and the increased labour fertility which enables one man to look after 2,000 birds instead of 1,000 in the other case. And I particularly stated that the figures were only given to illustrate my point. I did not say that 200 average was an extreme. I took that figure as being about on a par with the supposition that in the other case one man could look after 2,000 hens. I know that some claim to have an average of over 200; on the other hand, some claim to be able to do better than 2,000 birds per man. I did not imagine difficulties in the one case, or "calmly assume that everything will run smoothly" in the other. I ruled all such things out in the twice-repeated proviso: **"Other things remaining constant."** I worked out my illustration on bare figures alone, and challenge you to quote me in support of your statements which I refute in this paragraph.

True much has been learned concerning breeding, but that simply means that the level of production which is limited by this threat of collapse will be higher, for economic pressure forces every poultry farmer to get all the eggs he can. This applies to the large concern no less than the small, but since the chief means of the former is increased labour fertility, while that of the latter is increased fecundity, the greater danger appears to me to lie with the latter. He must always press on to the verge of breakdown—that must be his limit, and he must sail as near it as he dare.

Certainly the mammoth farms can only maintain their average by selective breeding—I have not said otherwise.

Now to deal with the most important point of all. You ask whether I have proved, except to my own satisfaction, that when the 200-egg average has been attained the 200 eggs will be worth only what the 170 are to-day. Well, I want to say this:—I did not make any bare statement and leave it at that, but supported my statement with ample argument. Why do you not touch that argument? You say that you are "not sufficiently versed in the higher economics" to refute my arguments, but that will not do. Economic statements are capable of being tested by reason. There is nothing supernatural about the science. My arguments were simple and clear, and it is manifestly absurd to ask me if I have proved my case while those arguments remain untouched.

But will you, Mr. Editor, admit that if the 200 eggs will be worth only what the 170 are to-day, the point is of supreme importance?

Mr. Wait asks how many birds I keep and what methods I adopt. I would tell him with pleasure if it had anything to do with the argument, but it has not. It was not reported that when he ventured into economics with the statement that supply and demand undoubtedly fixed prices, he prefaced his remark with an account of the number of birds he keeps and his methods. Neither did the present scribe ask for these particulars. Instead, I took up his statement and asked a question upon it—which he cannot answer. It has knocked the bottom out of his theory.

Your correspondent "Novice" asks where is the proof that selective breeding to throw out the "Duds" is erroneous? I did not say it was erroneous. I quoted the passage as supporting Mr. Higson's claim that we must have 200-egg flock average to "pay us for our work," and it was this idea which I said was erroneous.

"Magog" must be an economic marvel, for what you, Mr. Editor (recently referred to indirectly as the "best brains in the industry"), regard as the "higher economics" to him is simply an elementary truth. I deny "in toto," however, that what I have told him is "that the cost price of a commodity, coupled with the supply and demand, fix the selling price." I challenge him to explain what he means by "cost price." This correspondent's remarks as to the absurdity of imagining that giant concerns can become general in the immediate future is beside the point.

The question was, "**Will** they come?" not **when.**

Yours sincerely,

A. E. JACOMB.

50,000 HEN FARMS.

To the Editor of "Eggs."

Dear Sir,—I should have replied to Mr. Jacomb's letter before, but for the fact that I have been very busy.

In his last letter he refers to my statement: "In my opinion we want, and must have, 200 eggs per year flock average before we can get a reasonable return for our outlay and work." Now I wish it to be perfectly understood that in egg farming, as in all other business, there are profits and *PROFITS.*

I practice and advocate the small flock system, because I have found that it constitutes not only economy and increased profits, but possesses many distinct advantages over large flock systems. Furthermore, I advocate the 200-egg flock average, because I have found that it is not only possible, but a financially sound and economical proposition. I further claim that anyone with knowledge and ability can attain it, and the first and most important step towards this end, is by the elimination of the "dud."

Eliminate the "dud" and your flock average will rise gradually, but leave them in your flock, breed off them, and the more birds you have, the lower your average will fall. Consequently, on a 50,000 hen farm, *without selective breeding*, you would be lucky if you could maintain an average of 130 eggs per year. If Mr. Jacomb and Co. will study the above, they will see one of the reasons "why the 50,000 hen farm could never remain a successful enterprise for long." Of course, if selective breeding were practised, I should be much more diffident in forecasting its failure, but Mr. Jacomb contends that the selective breeding idea is erroneous. In fact, he contends that it is quite unnecessary.

If this is the case, will he explain why the system is practised by all the leading lights of the poultry world, to their advantage? According to Mr. Jacomb, the S.P.B.A. should cease to exist, all the leading men get out of it, and we should go back to the days when ignorance was bliss. Then the foreigner would smile, and dump more of his eggs on to the British Market.

The success of the British poultry industry depends on *PROGRESS.*

Even if his theory were to come true, and 200 eggs would only be worth what 170 are to-day, I think that in our own interests, and in the interests of our industry, we should aim at raising the standard of our flocks, and prove to the foreigner that we can deliver the goods.

Even if the 200-egg average did not solve a financial problem for the egg farmer, there is one thing that it would solve, and that is, keeping a large percentage of foreign eggs out of our markets, and giving the British housewife a sanitary egg, which is essential, in the interests of our national welfare.

Mr. Jacomb's contention that the "scope of the small flock system is narrow, and must always be pressing on the verge of physical breakdown," needs more proof. Whichever system is adopted, the scope must always be narrow to the man with a *limited capital*, hence the boundless possibilities of the large flock system, and mass production, will be useless to him. To give an instance: A man may have sufficient capital to lay out a 1,000 head farm, but when he has done this, his financial resources are low. Now, how can he lay out a 5,000 or 10,000 head farm, when his capital will not allow him to do so? Is it not a fact that 75 per cent. of our commercial egg farmers to-day are men with *limited capital*, and will it not be so in the future? We talk a great deal about large concerns, but who is going to capitalise them?

Furthermore, his contention that because one gets 200 eggs he must pay 2s. 6d. per bird more, "for extra food costs '*GREATER LOSSES*'," extra labour of handling, etc., is erroneous.

In actual practice this is far from being the case. On a yearly average, the poor layer consumes as much food proportionally as the good one, and the extra eggs show a good margin of profit over the extra food consumed. In other words, it costs no more to keep a heavy layer than it does a "dud."

As regards greater losses I claim that the greater losses lay on the side of the large flock.

The main aim of the small flock system is to *CUT DOWN THE LOSSES* to a minimum, in hatching, rearing, and general flock management. Mr. Jacomb, like all the large flock advocates, attaches too much importance to the question of labour. They run away with the idea that the small flock system must necessarily involve twice as much labour. In actual practice this is also far from being the case. I claim that on a well-planned small flock farm, one can manage and tend 10 flocks of 100 birds quite as easily as a flock of 1,000 on their system.

Furthermore, you can *control them*, and any ailing bird can be detected and removed immediately, thus preventing disease spreading which may lead to disastrous results. Contrast this with a flock of 1,000, and imagine a man trying to detect any ailing birds.

There are far more distinct advantages on the small flock system than the large flock advocates imagine.

In conclusion I will say: Whatever the advantages that are supposed to lay on the side of the large flock system may be, I am convinced that the small flock system will prove the best system for the man with the limited capital, and it is essentially the small man who will play a great part towards the success of our industry, and we must depend on their united efforts to route a large percentage of foreign eggs from the British markets.

Let them aim at a 200-egg average, and I am convinced that they will ultimately reap the reward of their energy and persistence.

Above all, they will have the satisfaction of knowing that they do not carry any "dud" stock on their farms—the parasites that rob the struggling poultryman of all hope of reward.

Finally, I do not believe that commercial egg farming will attract the capitalist class, simply because there will not be a sufficient margin of profit for them to handle.

Yours truly,
D. HIGSON.

MR. HANSON'S SCHEME—AND ANOTHER.

To the Editor of "Eggs."

Dear Mr. Newman,—While recognising Mr. Hanson's sincere desire to float an enterprise that will be of benefit to the poultry-keeping community as a whole, at the same time I should like to avail myself of your invitation to consider the other side of the question.

In the first place (as in all business undertakings), there is the question of capital. To use an Americanism, Mr. Hanson's scheme, as at present outlined, looks like an attempt to "put over a big proposition on a shoe string"—always a precarious undertaking, and one more suited to the individual gambler than to a co-operative venture.

Supposing we reckon on a minimum of 200 cockerels per annum from each shareholder (I think this figure would be a very safe average, as the very small man would, for obvious reasons, be hard to interest in the scheme), that means 1,000,000 cockerels to be handled in the space of about three months. In addition to the fattening, killing, and despatching departments, a very complete selling organisation, fairly widely scattered, would be a necessity in order to avoid forced acceptance of low prices. Add to all this the fact that a great proportion of the owners of heavy breeds already obtain prices which are quite satisfactory to them with very little trouble, which means that the bulk of the birds sent in would be Leghorns or other light breeds, yielding, at the best, very little profit, and the projected figure of £5,000 begins to look very small.

There are one or two other items that may seem mere matters of detail and hardly appropriate to be mentioned at this embryonic stage, and yet which will sooner or later be factors in the success or failure of the scheme if carried out.

Birds that have to be sent any distance, or from districts where railway connections are poor, will, I presume, have to be sent by passenger train. The cost of this, together with the cost of adequate crating, etc., will be quite a considerable item to the farmer, and will go a long way towards dissipating the anticipated extra profits.

Then there is, I think, a real danger of the scheme itself defeating one of its own primary objects—i.e., that of closer co-operation and unity between individual members of the poultry industry. The poultry industry does not stop at specialised egg farmers, but includes many large plants (representing considerable investment), where the producing of table birds for countrywide markets is exclusively or mainly carried on. If the successful culmination of Mr. Hanson's scheme is at all liable to result in benefiting the egg farmer at the expense of the producer of table poultry, then surely it ought to be dropped. Otherwise, instead of a combined industry steadily gaining strength through greater unity, we should have the hard work of years on the part of such societies as our own suddenly thrown overboard, and the whole industry divided into two hostile camps. **Surely this would be disastrous.**

However, as co-operation seems to be the watchword, at the grave risk of being accused of trying to steal Mr. Hanson's place in the spot light (such, I assure you, is far from being my intention), may I suggest an alternative scheme, which, if possible, would benefit the needy and considerably reduce the number of failures on the part of beginners (a serious handicap to any industry)?

A great many people have rightly or wrongly taken up poultry farming as a means of a livelihood, only to meet failure almost at the outset. As, unfortunately, since the war a great many of these have been partially disabled ex-service men, and many others, people who have been forced on to the land for reasons of health. This result has been tragic for the individual, and harmful to the industry. I mean, of course, to the right-thinking section of the industry, for there are undoubtedly those who, through selling useless stock to these people at good prices, have reaped considerable benefit therefrom.

I think it will be admitted that quite a large percentage of these failures were equipped in every way—enthusiasm, will to work, and will to learn—to make successful egg farmers, except for that one great stumbling block—the technical knowledge and experience necessary to the successful breeding and rearing of good stock, not to mention the very considerable capital outlay in the form of incubators, brooders, reliable foundation stock, and non-productive months of waiting, incident to this branch.

Keeping in health, feeding and tending poultry for egg production, is the ideal small-holder's job, either exclusively or as a part of a mixed holding; and, given good stock, I am convinced that any man who is willing and intelligent can make it pay, provided his heart is in it, **but**—and it is a great "but"—**poultry breeding,** perhaps more than the breeding of any other live-stock, **is a specialist's job.**

My scheme then, in brief, is a co-operative breeding plant for the supplying to the small-holder and egg farmer (who does not want to do his own breeding) at the lowest possible cost, of thoroughly reliable stock, bred entirely under S.P.B.A. rules, and thus ensuring a definite recorded pedigree and a chance of profit to the purchaser.

At present the beginner, or rather would-be purchaser (for there are many who have kept large numbers of fowls of sorts for years who must be ranked with beginners as regards their knowledge of breeding) is faced with a very poor choice. Either he must take all the risks attendant upon breeding his own, and often court failure, or he must choose a name and a price that excludes profit, or, as too often happens, get landed with a stock of nondescript mongrels on the strength of an attractively-worded catch advertisement.

It might reasonably be said that such a project would be liable to have the same effect on the breeder as Mr. Hanson's on the fattener; but would it? To begin with, breeding stock of the finest type would have to be bought regularly from established breeders, particularly so if, as I believe would be the case, the popular breed eventually becomes the sex-linked cross pullet. Then again, the scheme does not necessarily call for a separate plant, but could be done by co-operation of established breeders of standing, to breed for and supply to the small egg farmer and beginner sound stock of a type and at a price that will make them profitable solely as commercial egg producers for their two years of life, and which will be cheaper than, or as cheap, as the stock he might breed for himself. For greater help some defined payment scheme might even be made possible in approved cases.

In addition to the benefits to the purchaser and to the industry as a whole, I think it would mean a good sound quantity business for the breeders and a profitable one, for surely with their knowledge and equipment they can breed in quantity more profitably than the beginner whose inexperience so often means high mortality, excessive outlay on useless gadgets, high cost of food, and poor stock at the end of it all.

Yours, etc.,

NEVILLE JOHNSON.

CO-OPERATIVE FATTENING.

To the Editor of "Eggs."

Dear Sir.—I have read with interest Mr. S. G Hanson's article on the above. Also Mr. W. E. Prideaux's criticism (so called). The proposition seems to me quite reasonable and workable. To me Mr. Prideaux's article lacks business instinct and foresight, and it reads to me as if his mind does not and cannot wander outside Club Row and its surroundings, and it rather upsets me to follow his article, for in the first paragraph he says: "The advertisement it is likely to receive and the goodwill of the shareholders are sufficient to prevent it from becoming a failure."

There are always markets open and ready to take the right article and pay its value. Also, in reply to his question of 5 per cent. I ask, is it not a fact that there are a large number of egg farmers that have direct contracts for their eggs? Why not fattened chickens? Perhaps some of the Club Row dealers are getting the wind up, because they can see a shortage of cockerels that they can pass off on to the unsuspecting public as pullets, which, I think, is about time it became punishable. I have got myself in trouble more than once in stopping some would-be poultry-keeper buying cockerels for pullets. When caught he gives up in disgust.

Again I would like to ask Mr. Prideaux to take his mind away from Club Row, where they sell day-old Wyandottes and Leghorns and guarantee them as pullets at 10s. a dozen. Jews will pay the price for the right article. No one can compare the Jew that buys in Club Row with the Jew that buys elsewhere ; for every Jew that buys in Club Row, there are a dozen that buys in shops. The Club Row Jew will buy anything that can walk and has a reasonable chance of passing the Rabbi for killing. Let us broaden our minds and get away from Club Row to other districts and see the price paid for poultry fit to eat. The scheme, given such brains that run "Eggs," some keen business men that are well up in the art of placing the goods, the poultry farmer would average more than is at present realised. Even if he only gets an average of one penny per bird extra it would serve a two-fold object. The cockerels would go where they should go—on to the table, and there would not be so many innocent back-yarders caught napping.

Mr. Prideaux's letter strikes me as one long letter of contradictions. When he speaks of the success of Bovril Ltd. owing their success, not so much to the contents of what is in the bottle, but to keen business enterprise. Why not keen business enterprise in Co-operative Fattening? I notice that Mr. Prideaux is sympathetic towards the back-yarder. We do not want that sort of thing on paper. But deeds count much more than words. I know the Editor wanted adverse criticisms. Put the scheme in the right hands, and managed on business lines, and there is sufficient supply to hand, I see nothing to stop it. In fact, although only a back-yarder, I would willingly add my little mite to help the small struggling poultry-farmer to realise a better price for his young cockerels, than what he gets from the haggler to-day.

The main criticism would come when the scheme is working ; then it could be altered, when and where it has been found wanting.

F. H. MARKOFF.

(Our correspondent is very much mistaken. We most certainly did **not** want adverse criticism. We only desired that every aspect of the question should be presented to our readers.—Editor.)

EARLIER HATCHES.

To the Editor of "Eggs."

Dear Sir,—In Dec. 12th issue of "Eggs," I notice that Mr. "1220" is asking how Mr. Meekings manages to rear pullets or cockerels to five months of age at a cost of 4s. 6d. per head, so thought that the account given below might be of interest.

I always hatch a few small batches in October and November for table birds, and out of curiosity kept strict account of the batch hatched on 1st October last.

Sixty-two eggs were put in the incubator (Hebditch 70) and 49 hatched out—one was deformed and "hit on the head," one died in the brooder, and the dog killed three ; the remaining 44 are going ahead splendidly. The brooder (Lorna Doone "100") was not heated after the third week.

I have charged for all food at the price I sell at, **not** at cost price, so they have even cost me less than 1s. 5¼d. each for eleven weeks.

The only item I have not charged for is green stuff, of which they have had plenty, but as it was principally lettuces that had run to seed and outer leaves of cabbages, etc., the cost would be very small.

I am still keeping account of their food bill, and if it will be of any use to "1220" shall be pleased to let him know cost per head at four months, or until sold, also price they fetch for table.

The majority of these chicks now weigh from 2¼ lbs. to 2 lbs. 10 ozs.

COST OF 44 FIRST-CROSS CHICKS FOR FIRST ELEVEN WEEKS FROM 1st OCTOBER, 1923, to 16th DECEMBER, 1923.

FIRST THREE WEEKS—

	£	s.	d.
62 Eggs put in incubator		15	0
Oil for incubator		2	0
Oil for brooder		1	6
1 st. Chick Feed at 20s. cwt. ...		2	6
10 lbs. Dry Mash		1	6
	1	2	6

FROM THREE TO SIX WEEKS—

	£	s.	d.
2 st. Chick Feed at 16s. cwt. ...		4	0
26 lbs. Mash		3	7
Milk		2	11
	1	13	0

FROM SIX TO EIGHT WEEKS—

	£	s.	d.
44 lbs. Chick Feed		6	6
49 lbs. Dry Mash		7	0
	2	6	6

FROM EIGHT TO ELEVEN WEEKS—

	£	s.	d.
70 lbs. Mixed Corn		7	10
64 lbs. Dry Mash		9	2
	£3	3	6

COST OF 44 CHICKS REARED TO ELEVEN WEEKS ... ... £3 3s. 6d.
COST OF EACH CHICK FOR ELEVEN WEEKS ... ... 1s. 5¼d.

Yours faithfully,
G. STANLEY SARSON.

The Homestead,
Weeley, Clacton-on-Sea.

EARLIER HATCHING.

To the Editor of "Eggs."

Dear Mr. Editor,—It was very good of you to devote so much of your valuable space to applying the dissecting knife to my letter on this subject. I don't know that I should have intruded again, except for one erroneous conclusion, which, in view of your known fairness, I am sure you will be the first to correct. You say in relation to fertility from early mating, "that my experience is limited to the Sunny South," and suggest that I should alter my mind "had it extended to the North." Well, it happens that my experience includes several years far removed from the "Sunny South"—viz., 200 miles north of London.

For the rest, it takes a great deal to convince a man against his actual experience. I still maintain that the inference I drew from your original article was the only reasonable one, i.e., limiting the only suitable months for hatching the White Leghorn to either January or April. If I am right, I think such advice is too restricted (if you think the word "dogmatic" is too severe).

The "little exaggeration" which you attribute to me is even more diminutive than you kindly suggest. Your claim that Mr. Adams is the only one to differ from you is surely open to the same charge, seeing that Mr. Hector Morison joins issue with you, equally with Mr. Adams and myself, regarding leg weakness. Mr. Morison also differs from you as to one year-old pullet being the better breeder. On this I have my own opinion; but as it is not based on any definite test or actual experience, it remains an opinion, and as such is not necessarily of any practical value. You make a definite statement on the point, and I venture (with fear and trembling) to ask whether there is sufficient data to justify an unqualified assurance in a paper so influential as "Eggs." You say "the January-hatched Leghorn will be found superior as a breeder to yearling hens." Presumably you mean to two year-old hens. Any actual proof of this, or is it only an opinion? In your comment (on December 19th) you rightly claim to know more of the general position than I (or, I suppose, any individual reader) can know. But taking your original article and your comments together, you show how very easily even Editors can be misled.

In the latter you rather pride yourself that all correspondents except one have agreed with your views on earlier hatching, etc. But, in opening the subject five weeks earlier, you wrote:—"We are afraid that we have not so far convinced anyone," and again: "We have been jumped on by the aforesaid commercial egg farmers."

In other words, the impression you intended to convey, on November 14th, was that Commercial Egg Farmers, as a body, were against early hatching, and on December 19th only one has "expressly differed from you." In your own words, "surely this is inconsistent."

You have thirty years' experience of the industry. I commenced to "rub shoulders" with hens much longer ago than that. But if there is one thing patent to all in the business (according to my reading) it is that years don't count, seeing that in the light of modern research and continual development we seem to want to set apart about a day each week to unlearn what we learnt the week before. For this new light the blame (I mean the credit) rests largely on your own shoulders, and I venture to suggest that some opinions which even you have held in the past are as quite as strong evidence as you have for your present opion on, for example, the causes of "leg-weakness," and are now among those which, as you say, "appear rather amusing in the light of our later knowledge."

Anyway, don't keep your readers off February hatching for Light breeds, especially if for any reason they have failed in their attempt during January. Taking your original article literally, they might be tempted, after a January misfit, to wait until April, under the impression that it would be better than hatching in February or March. February (especially the early part) can, in certain weather conditions and good rearing, be as good as January, while late March can be as good as April. You class the eight weeks of February and March as identical, and here I think it would be better to differentiate as suggested, or readers might easily be misled.

I should like to close with an expression of all your valuable articles, not less appreciated, because some points are occasionally queried.

Yours faithfully,
MARTIN HARVEY.

May we first refer Mr. Harvey to the opening paragraph in his last letter. He wrote: "And some of your erroneous conclusions have been exploded by your correspondents." That is why we spoke of his "little exaggerations" as no one had exploded our conclusions, nor proved them erroneous. Mr. Adams did not agree with us on the question of leg-weakness and fertility. Mr. Morison wrote:—"I was almost going to say I agreed with you 'in toto,' but your advocacy of breeding from the early birds, and your remarks on leg-weakness do not appeal to me. However, your other well-reasoned arguments are the ones that matter."

Now have we not a right to speak of Mr. Harvey's "little exaggerations?" Has Mr. Morison "expressly differed from us?" and did he or Mr. Adams—although the latter disagreed with us on two points—prove our conclusions "erroneous" or "explode" them?

We apologise to Mr. Harvey for having suggested that his experience was limited to the "Sunny South." We thought that he only commenced serious poultry-keeping on a large scale a few years ago near Basingstoke; apparently we were mistaken.

With reference to the question of breeding from the January-hatched pullet, Mr. Harvey asks whether we have "any actual proof of this, or is it only an opinion."

Five years ago we should not have ventured to make such a statement, nor should we do so now if we relied on our own experience. At a conference held in London we met several of the best-known Northern breeders, and, much to our surprise, we found them practically unanimous on this point. Their argument was that a January-hatched pullet was actually in her prime, and that she gave the most vigorous chicks and the most fertile eggs. It must be remembered that we are speaking of a pullet which is twelve months old, which has reached her full development, and has not lost her vitality through heavy laying. Such experienced breeders as Mr. Abel Latham, anl Mr. Wrennals, were most emphatic on this point, indeed Mr. Wrennals, with whom we had a long conversation on this point at the recent Dairy Show, expressed himself most emphatically in favour of breeding from the early pullet, and as his experience of pedigree breeding has been a very long one, it is of great value. Our own experience coincides with that of Mr. Wrennals.

We should not venture to make such a definite statement unless we felt that we had convincing evidence.

With reference to the charge of inconsistency, which Mr. Harvey makes. In the opening article we were writing of what occurred in a previous discussion on this topic, in the article of December 14th the reference was to the present discussion. In the earlier discussion, some five or six years ago, we were jumped on by the commercial egg farmers, on the question of early hatching; in the present discussion we have had but one correspondent who has differed from us on this particular point. So that there is no inconsistency.

We do not desire to keep our readers off February hatching of White Leghorns, although we much prefer the January bird for the reason given; and nothing Mr. Harvey can say will induce us to alter our mind as to March-hatched Leghorns. If you can't

the second week in April—that is, if you are breeding for egg production. A March-hatched Leghorn will not develop as quickly as a February bird, it will probably lay in late August or September, and have a neck moult at the end of October, and not lay again until the beginning of January. There may be exceptions to this rule, but we cannot gamble on exceptions.

If on the question of fertility and leg-weakness we relied solely on our own experience, we should not make such definite assertions, as obviously the experience of one man is not that of another, and it is only by collecting the experiences of our readers all over the country that it is possible to realise the difficulties, and form an opinion which we can present for what it is worth. In the opening article we put these forward as objections, but carefully pointed out that they were not difficulties which could not be overcome. We must thank Mr. Harvey for his appreciation.

RED SUSSEX.

To the Editor of "Eggs."

Dear Sir,—I have recently noticed several enquiries with reference to the Red Sussex. It has always surprised me that this breed is not more popular. Of course, it is not so many years ago when the Lights were practically unknown; now they are one of the most popular breeds in the country, and have travelled to most parts of the world. I do not think it will be long before the Reds come into their own.

Like the Lights, they are the perfect table bird; they grow quickly, and are very hardy, and if care is taken in breeding, lay equally well.

I have recently been selective breeding, and my flock of Reds now equal or beat the Lights. My output of eggs since October has been wonderful. One has only to look at their many successes in Utility Shows to prove they are born layers, if there is anything in the handling test.

In colour, which is deep mahogany red, they are superior to the Rhode Island Red, and are more uniform in colour, and are not handicapped by having yellow legs, which, in my opinion, quite spoils the Rhodes, particularly as a table bird.

I strongly advise anyone interested to give them a trial. Merit, sooner or later, forces itself to the front, and I feel quite sure in a few years they will rival the Lights in popularity.

Yours faithfully,
P. B. ADAMS.

Hayward's Heath.

Re LIGHTING.

To the Editor of "Eggs."

Dear Sir, The obvious answer to "Cackle" is that he ought not to be possessed of "three hundred backward pullets." If the only purpose of lighting is to "ginger up backward pullets," why not keep mum about it? When "Cackle" and the rest get busy on breeding the best, and a few other of the true problems, there will be no "backward pullets" to light up.

The above is not meant as a flippant answer—I am quite serious. Artificial light has been recommended as an integral part of any up-to-date poultry plant, and the danger is that while it solves no problems it does mask some real ones which might otherwise be solved. The sort of "darkness" the poultry-man needs some light upon is the kind referred to in the prayer, "Lighten our darkness, etc."

Yours truly,
G. A. THOMPSON.

FISH MEAL.

To the Editor of "Eggs.'

Dear Sir,—I forward you the enclosed advertisement taken from the "Times," December 24th, in case it has not been brought to your notice by anyone else:—

> "Fish Meal. Sleeping or active partner, with £3,000. Unlimited supplies. Profits £10 per ton net.. 50 per cent. return on capital.—Write Box 1,072, "The Times," 42, Wigmore Street, W.1.

It shows unblushingly how we poultry-farmers at the present time are being bled by profiteers. Since all brands of fish meal on the market are much the same in price, no doubt all manufacturers make this same profit, and probably even more when selling direct to the consumer.

If all poultry-farmers would cut fish meal out of their menus, and any other items proved to be being offered at extortionate prices, manufacturers would then realise that poultry-farmers intended no longer to be robbed, and would reduce their prices to show a legitimate profit, but so long as poultry-farmers will pay extortionate prices, so long such prices will contine to be asked by manufacturers.

R. P. H. C.

We have received several copies of this advertisement from other sources, asking that comment shall be made on it in these columns, but surely it is a case where comment is needless.—(Editor).

INCUBATION.

To the Editor of "Eggs."

Dear Sir.—I read, in a recent article in your paper, a reference to the habits of the "brush," or scrub turkey. I was not fortunate enough to have read your article in 1916 on the subject, but I would suggest that to argue on such an analogy may be a trifle misleading.

For the treatment meted out to the turkey's eggs is so totally different from that which is meted out to the eggs of the domestic hen, when both are in a state of Nature, that one is driven to conclude that there is some fundamental difference in the structure of the egg.

For instance, in the case of the turkey's egg—once laid it is never moved. Would that treatment do for hen's eggs? (Yes, it would "*do* for them"!)

Within my own experience it is misleading to say that the turkey hen "scrapes a hole in the bottom and leaves its eggs to be hatched." On the contrary, the eggs are never together, but very carefully sited in a symmetrical fashion, in a circle, or where many birds lay in one mound, in circles. They are regularly spaced, and each egg is laid on its side, with the small end pointing inward, and slightly downward. And they are not at the bottom. At least, I would say that, having dug out many of these nests, I never yet found eggs at the bottom. In certain parts of Queensland these nests are not rare, and it was always our experience, that when a search revealed no eggs in the upper two-thirds of the mound, it was useless to penetrate further. I never heard that anyone could tell from outward inspection whether these mounds contained eggs or not, so this point was of practical use to us, as it saved us moving considerable quantities of rotting jear to no purpose.

I am, yours truly,
A. T. MONCK-MASON.

(As we drew the analogy with the Brush Turkey, solely on the question of carbon dioxide, we cannot agree with our correspondent that it is misleading, and the point that the turkey's egg is not moved after it is laid, does not affect this particular argument. The real point is the question of carbon dioxide from decayed vegetable matter.—(Editor).

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package. and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations

L. Y. (Devon). Your dry mash formula could certainly be improved, as you are using too high a percentage of bran. I would advise you to reduce this to 2lbs., and increase the middlings to 4lbs. If you think the situation too bleak for White Leghorns, and prefer another heavy breed, I do not think you could beat the Light Sussex, although, of course, for actual egg production, the White Wyandottes, on an average, are the better layers.

L. P. (Shotley Bridge). White Leghorn cockerels, mated to Ancona hens, would make a fair laying cross, but I cannot tell you that it would be an improvement on either breeds kept pure. Most of the birds would come white, and there would be no difference between the colouring in the cockerels and the pullets. A Game Cock and R.I.R. hens would make a good table cross, but as layers would not be very satisfactory. The Brown Leghorn cockerel with R.I. Red hens would not give you better layers than either breed kept pure, and the cross would not be quite such a good table bird as the R.I. Red pure.

"Enquirer (Carterton). The ground oats are not "Sussex" ground, but simply an ordinary oat ground in the ordinary way. They contain rather a high percentage of fibre, but fairly good value at 15s. 6d. In a genuine sample of Sussex ground oats you can scarcely detect the fibre or hull. The toppings at 10s. 3d. are very coarse; they are not fit to feed to poultry. The bran at 8s. cwt. is quite good value. Sample "A" of fish meal appears to contain too much oil, and is likely to taint the eggs. Sample "B" is the better.

J. G. C. (Welwyn). I cannot detect anything wrong with the fish meal, but the gluten meal is unsatisfactory, and I am more disposed to think this is the cause of the birds going off the mash. You can hardly call this my formula when you leave out one of the principal ingredients. This is gluten meal, and not germ meal as you state, and it contains a very high percentage of maize offal, which is not nutritious. The formula you are using is altogether wrong. I would advise you to include the ground oats and use maize meal instead of this gluten meal. For your breeding pens a good dry mash would be: 1lb. each of bran and alfalfa meal, 4lbs. of middlings, 1lb. of maize meal, 1lb. of S.G.O., ½lb. dried yeast, and ½lb. fish meal. Now please do not leave out the S.G.O., and then write me and tell me you are feeding according to my formula. If your fish meal is properly stored you could buy a half cwt., or even one cwt. at a time.

K. L. (Derby). Of the two samples of ground oats you send, "B" is rather the better, although there is not much to choose between them. I cannot see why there should be a wide difference in the price.

A. L. (Henley). I would not begin to feed the chicks which you intend for table purposes differently until they are a month old, then, as you want them for table, give them as much range as possible to allow them to develop frame. Feed on biscuit meal scalded and dried off with sharps twice a day, and also give them one feed of ground oats scalded and dried off with middlings once a day. If you could give them skim milk to drink for the first six weeks it would greatly help. You should continue this until they are about ten or twelve weeks old, and then put them on a fattening mash. I am glad to hear that you were successful in rearing 400 chicks last season on my formula, and only lost two birds, and that several pullets have laid well over 100 eggs to date.

A. J. (Llanfairfechan). You have nine R.I. pullets which are laying very badly, and frequently go into a partial moult. On the same formula you have Black Leghorns, which are doing remarkably well. I think the difficulty with the R.I. Reds is that they are a little under-nourished; being much larger birds they require considerably more food than the Black Leghorns. Therefore, I suggest that you give them a good feed of maize as the last feed (kibbled)—say 2ozs. per bird. I think, if you do that, they will soon pick up and begin to lay again. As they are in a partial moult, it is not likely they will eat much of the mash.

S. B. (East Yorks). The sample you send is not "Sussex" ground oats, but "feed oatmeal." It is a very good sample indeed, and if you can buy it at £12 10s. per ton I should advise you to do so, and use it in place of the ground oats. It would be quite suitable for chicken rearing.

"Fife" (Kinghorn). The parings are a very good sample, and, as prices go, cheap at 10s. 6d. The broad bran is good average quality, and cheap at 8s. The oatmeal is clean and good, and is much better value than the so-called Sussex ground oats, which are not "Sussex" ground, and are rather dear at 18s. The clover at 13s. does not contain much clover, but is meadow hay, and not nearly so good for the purpose. I do not like the meat meal. It is cheap, and it does not smell sweet. I think your mash would be improved if you were to reduce the bran to 1lb., and add another ½lb. of parings, and bring the Indian meal up to 1lb.

A. G. L. (Lancashire). I do not think there would be any advantage to fix two narrow water troughs, as you suggest, to a Pyramid hover, as the air is not too dry under these hovers. (2) On the alternate run system you could safely keep 400 birds to the acre, whether light or heavy breeds, but this would depend to some extent on the nature of the soil; if it were heavy, I should limit it to 300. There is, of course, the question of safety, that is as against the danger of foul ground; but from the point of view of best results, I should limit it to 250. (3) The length of the house must be determined by the number of birds you intend to keep to the acre. If the maximum number, it should be 100 feet long. If only 300, 80 feet would be enough. (4) I do not consider barley meal is as good a food as maize for egg production, but if it is a good sample and finely milled you could substitute it for maize meal. (5) The mash you propose would be far too fattening for egg production. It would be better if you reduced the barley meal and the ground oats to one part each.

W. W. (Gateley). Glad to know you think "Eggs" is topping. I cannot tell you how long it would take a pullet to measure a full four or five finger capacity, after she has started to open from her normal two fingers width. She would not reach the five finger capacity until she was in full production. I am afraid you will have great difficulty in preventing crooked breast bones not developing in the chicks bred from crooked breast-boned parents. Presuming that this was due to inherent weakness and is not an acquired character, The only thing you can do is to add the mineral mixture which I have so often given in "Eggs" to the chicks' mash so that they get enough bone-forming material. Yes, you could leave the bran out of the mash of your backward pullets in order to bring them on a little more quickly. Simmered oats dried off with sharps and bran would be better to bring on backward pullets than the extra feed of maize. When hens are hanging a long time in the moult add 4 per cent. linseed meal to the mash; that would be better than an extra feed by lamp light. No, the hen's comb will not indicate that she is over-fat. You could tell if your pullets were over-fat by feeling the abdomen. If this is full and hard you may be sure that they are over-fat. If it is full and supple they are in good condition, but if it is shrunken and dry then they are out of condition. If you think your birds are over-fat the best thing to do is to give them plenty of scratching exercise, and add more bran to the mash. Do not give maize as the grain, and that should soon get them in good condition again. Also, only open the hoppers for a few hours daily.

J. T. L. (Newport, Salop). As the hen is so fat, reduce the amount of mash, and feed it late in the day, giving her a small feed of grain as first feed, preferably oats, in the scratching litter. You must keep her on the hungry side, and make her scratch for every bit of grain in deep litter if you want to get her in condition. A mild dose of Epsom salts would help, but don't overdo this. Sussex want capital feeding when just through the moult, as when not laying they have a tendency to put on fat.

R. H. P. (Whitby). The soya bean meal is a very good sample, but rather coarsely ground. I cannot tell you anything about the Rangoon bean. If you use the Soya bean it will be necessary to alter the formula. The best way would be to reduce the ground oats and fish meal to half part each, and add one part of soya bean. Thanks for your good wishes.

L. C. (Newcastle). I am pleased to hear that, after studying the "Handling and Observation" chart, you were able to go through your flock, and remove 43 duds, and with the removal of these unprofitable birds your egg returns are as high as before you culled them. That is as it should be. Now is the time to cull, and egg farming would be much more profitable if it were not neglected. There is a high percentage of unprofitable birds on many egg farms. (2) The pale yolks are due, to some extent, to your feeding. Replace half the wheat with kibbled yellow maize, and as you are only able to give a small quantity of green food, supplement this with some mangolds for the birds to peck. This will soon improve the colour of the yolk.

N. F. C. (Glastonbury). Your mash is quite all right. It is one which I have recommended in "Eggs" on more than one occasion. You could use maize meal in place of the flaked maize you are using. It would not be quite so digestible, as the latter is cooked, but it is the only substitute. With a R.I. Red single comb bird you could not produce a pea-comb progeny if it were pure single comb. I should imagine that the stock originally contained some rose-comb blood.

A. D. (Methven). I should hardly think that the capsule of an incubator, which has not been used since 1921 would be reliable, but you could test it by placing it in water heated to about 95 degrees; at that temperature it should expand. What I have said about non-cooling would apply to all types of machines. It is better to have a wick which will not char than one that does so.

F. M. W. (Harleston). The sample of maize meal is of fair average quality. The Supers, or middlings, at 9s. 6d. cwt. delivered are really good value—much better than many sample sent me at 11s. 6d. The alfalfa meal is rather stalky, and the bran at 8s. 6d. only moderate, but much better than many samples sent me at 1s. cwt. dearer. The meat meal is a good sample, and at 18s. cwt. good value. The ground oats are very good, indeed, only it puzzles me to know how you get them at 14s. 9d., carriage paid. I am very pleased to hear that in following my formulas you have got the best average that you have had since you started keeping poultry three years ago.

A. S. M. (Fleet). The only method by which you could prevent draughts in the house which you describe would be by having louvre windows. I can see no other means if you want to have perfect ventilation and the windows open at night. The cutting which you enclose has been published in "Eggs," and I intend to bring the matter before the National Poultry Council.

C. N. J. (Kent). It is very difficult to give you an estimate for rearing a chick to maturity, or to feeding an adult bird on my formulas, as it depends so much on the way in which you are buying. I am able to raise a chick to six months old, on my formulas, for 4s. 6d. Probably it would cost you 6s. If you could buy largely, I think you should be able to feed an adult fowl at 2¼d. per week. I cannot give you any other formula for intensive birds than: 2lbs. bran, 4lbs. middlings, 1lb. of maize meal, 1lb. of ground oats, 1lb. of meat meal; or you could replace half the meat meal with dried yeast. As I have repeatedly stated, if oyster shell is given, flint grit is unnecessary. I think charcoal is of more value to young chicks than to adult stock.

DUCK QUERIES.

D. E. C. (The Lawn, West Bolden). I imagine that your duck house is rather a small one, and can understand that it is somewhat awkward to feed them inside it. I do not think that the laying would suffer at all if you let them out even in the most severe weather, to have their corn feed at, say, 8 a.m., and then shut them up again for a few hours. No matter how severe the weather I should let them out for exercise for at least a few hours. Ducks often lay up to 10 a.m. Your birds are doing quite well upon the mash you are giving them, so should make no alterations. As the breeding season comes near, you might, with advantage, make it rather less concentrated by adding another part to the middlings.

B. W. (Wickhamhook). You have had an unfortunate experience, but really you are yourself largely to blame for it. Cross-bred eggs bought at haphazard in the neighbourhood are not likely to produce winter layers—though occasionally an odd one does so. These ducks of yours may begin to lay very shortly now, and may do well until into July, so it would be a pity to get rid of them when they are just coming into profit. You should keep them on and buy some good eggs for hatching in April or early May. By "good eggs" I mean eggs that are the produce of certified—bred to lay, recorded ducks with records of anything up to 200 and 250 eggs in their first year, 40 of which have been laid in October, November and December. Runners might suit you as well as any, but if you want a general purpose bird then choose Buff Orpingtons.

POST-MORTEMS.

H. B. The Leghorn pullet died of internal haemorrhage, caused by the strain on a great blood vessel of an ovarium, which had been converted into a mass of tumours, for quite a long time. Trap-nesting would have enabled you to weed out this "dud." It was not tuberculosis or any other infectious disease, but a perverted nutrition of which the cause is not known—or but dimly perceived.

G. C. All the chicks had pneumonia, and of the kind associated with the breathing of bad air, but rapidly becoming infectious. The "orange-coloured livers" which you found in those opened is due to arrested development. They are hatched with yellow livers, but should become chocolate or "liver" coloured by the time the yolk sac is absorbed. Their illness prevented this change from the embryonic state, as any other disease does when it occurs in the first week. Crowding in the hover may well have been the cause.

H. B. A large clinker had lodged in the proventriculus or glandular stomach and set up inflammation and become fixed firmly, thus entirely blocking the digestive canal. She was otherwise healthy although under-sized.

G. H. N. The large bowel was ballooned through a stricture at the flexure, and the pressure forward interfered with the heart and lungs, but she would have died of starvation anyhow. It is not likely that your other losses could be attributed to such a cause, which must be regarded as accidental, and following upon spasm, as in quadrupeds suffering from spasmodic colic. It, of course, suggests indigestion and possibly some unsuitable food.

M. C. (Scotland). Internal haemorrhage from rupture of a large vein in the abdomen. She had a very small egg in her, fully shelled, and the promise of many in a very highly-developed ovarium. No infectious disease.

E. M. No, not B.W.D., but the caseous form of pneumonia, which results from poisoned air, and which is at first not infectious, but opens the way for the germs of infectious disease.

"F" (Duck). No, not "pulmonary consumption," nor any sign of tuberculosis. There was a floating kidney, and the urine tube was twisted and filled up, and I suspect caused an auto-intoxication by absorption (uraemia). This must be regarded rather as an inference than a positive diagnosis. Ducks are very difficult to diagnose, as they are so subject to cerebro-spinal meningitis and die suddenly, and often there are no visible lesions. The heart was extremely pale, and a portion of the liver quite black, but only from pigmentation and not disease.

"R. A. M." This undersized bird was very thin, and weighed only 2 lbs. 10 ozs., of which 11¾ ozs. was liver. Amyloid degeneration had caused its enlargement, so that it occupied practically the whole of the belly and trespassed upon the chest space, so that heart and lungs were impeded. No, she was not a layer, nor could ever have been with such structural changes. The causes of amyloid liver are not well understood, but my own opinion is that overcrowding and bad air has much to do with it. It is not regarded as infectious, or you would have been communicated with by post.

J. G. Apoplexy. The kidneys were very much inflamed, and I think there is something in the ration that is causing it. The same conditions would very likely be the origin of similar losses to which you refer, and you might try a change, or delete any item you suspect of not being good. Some of these "drop-deads" are the victims of cumulative poisons—that is to say, that a subtle toxin in such things as Indian peas (Lathyrus sativus) and Burmah beans, and some Egyptian samples is present, and does not have any apparent ill-effect until weeks or even months have passed, and then sudden failure occurs, either as heart failure, apoplexy, or a paralysis of the limbs. It is most important that foods should be obtained of thoroughly reliable firms, as there are still many who think anything will do in poultry mixture and mixed meals, and they work off unsound stuff in this way, or more often do so unknowingly.

E. E. You do not give a word of information as to the Rhode Island Red pullet, but I can tell you that you broke her neck when she was already bleeding to death internally from rupture of a liver that had undergone fatty degeneration. Senders of birds for post-mortem examination should afford all the information available, as there are many cases that are not easily diagnosed, like this one, but altogether baffle the examiner, as do human autopsies, with all the advantages afforded by a coroner's inquest.

O. The Croad Langshan had septic pneumonia. The uterus was greatly distended with material which is best described as scrambled eggs, and could not by any possibility have "laid the day before death." Having regard to the other losses and the known infectious nature of this kind of pneumonia, every precaution should be taken, including the fortification of the flock with iron and quinine in the convenient form of forty grains of the citrate to each gallon of drinking water.

D. L. The chick had pneumonia in acute form, but the duodenum was suspiciously coloured. I should advise every precaution as against infectious disease. It is my opinion that pneumonia caused by variations of temperature offers a seedbed for the septic variety, and what was accidental, rapidly assumes the infectious form.

B. All the chicks were suffering from infectious pneumonia and enteritis, and had been affected from the earliest possible date, as indicated by arrested development of their livers, which varied in colour from pale primrose to orange. The caseous deposits in the lungs also confirm early infection. Yes, it is often most difficult to find how the germs have been carried, and nearly all my correspondents are confident that they have left nothing undone when disinfecting, but there are many ways in which it happens. You have bought in eggs. Coccidiosis has been proved definitely to have been carried on eggs, and recommendations made to sponge them with methylated spirit. Nothing better than iron and quinine has yet been proved, and I would advise trying it in the present trouble.

"Losses." I have made a post-mortem examination of the W.L. pullet, and cannot ascertain the cause of the trouble. What I find is the gall bladder distended, and stricture of its duct, and deep bile staining of the belly, particularly of the fat. There is an abnormal dryness of the tissues throughout. The symptoms during life which you describe only point to an auto-intoxication such as would result from absorption of bile into the circulation. I suspect an excess of salt in some food they are getting, but cannot put a finger on it. Fish meal is the mostly likely to have it, and I would advise omitting it altogether from the ration for a time. Perhaps you will let me know the result of deleting this item from the ration, and giving S.G. Oats in substitution.

"Dip." Post-mortem examination revealed the case to be one of avian diphtheria. It was one of those with no signs in the mouth, but the larynx and a portion of the windpipe was completely blocked with morbid material. I am sending the upper portion for you to see. These are the cases that are so difficult to keep out of laying competitions, as they cannot be seen unless the larynx is opened; and while alive, the material cannot be taken out for examination. A blob of thick mucus may deceive even the elect, but in the dead subject dissection of the parts makes the diagnosis positive. Segregate suspects promptly, and use every means of disinfection. Any you attempt to treat should be taken in hand promptly, and daily their heads should be dipped in a two per cent. solution of permanganate in water, holding the mouth open for about twenty seconds. It is a virulent disease and the infection most difficult to eradicate, especially where birds are kept in close quarters, as in your case.

Roups. This bird had diphtheritic roup at a stage when it should have been easily cured if the morbid matter had been scraped away severely, and the denuded membrane painted once or twice with a solution of iodine of the strength of one in sixteen. Diphtheritic roup and that catarrhal form of it with which a discharge from nostrils and swelled orbits are symptoms are quite distinct. The measures and precautions you have taken are quite right in my opinion. Roup in the blood. No, you cannot tell until some local manifestation takes place. Giving citrate of iron and quinine at the rate of forty grains to the gallon of drinking water appears to neutralise the influence of roup in the system, and the same may be said of one grain doses of sulphate of copper or of iron. Dried roup discharges have proved infective by inoculation after FIVE YEARS. It may be carried on the plumage and in other ways by birds not themselves affected. Rats may carry it, but the corn might be fed to other species with safety; and a very minute risk in the case of fowls. I have not taken your questions seriatim because most of your difficulties hinge on the differentiation between the kinds of roup. It is thought by the Editor of "Eggs" that publication of cases with brief comments will be helpful to members, but no names or recognisable initials will be used, as it would be most undesirable for poultry farms to be identified as infected.

W. J. M. The Leghorn hen had a dropsical heart and chronic disease of the liver. Not any infectious disease.

H. LEENEY.

CORNWALL COUNTY EGG-LAYING TRIALS, 1923-24.

Results for 2nd Month—Nov. 12th to Dec. 9th, 1923.

Position.	Competitor.	No. of Eggs laid.	No. of Eggs Counting.	Money Value.†		
				£	s.	d.
WYANDOTTES—						
*1.	Mrs. M. Tickell	79	76	1	1	10¾
2.	Mr. T. H. Rowe	71	71	1	1	1
3.	Mrs. Gibson	66	66	0	19	7
LEGHORNS—						
*1	Mr. Wm. Pickard	67	61	0	19	7¼
2.	Mr. H. Rashleigh	54	47	0	13	1¾
3.	Major J. Y. Baldwin ...	47	45	0	13	4¼
LIGHT SUSSEX—						
*1.	Mr. H. Rashleigh	57	57	0	16	11
2	Capt. Seldon	40	40	0	11	11
RHODE ISLAND REDS—						
*1.	Mr. P. Moss	62	62	0	18	5
2.	Mr. T. H. Rowe	61	61	0	18	1
OTHER BREEDS—						
*1.	Mr. F. Martin ... ... (Buff Rocks)	62	62	0	18	5
2.	Major Fitzgerald ... ... (Ex. Leghorns)	45	45	0	13	0½
3.	Capt. L. Smith, M.C. ... (La Bresse)	62	39	0	11	6¾

Total number of eggs laid (176 birds): 1789.

Weather conditions bad—wet, cold and stormy. Health of flock excellent. Many birds moulting. Few broody.

CHARLES H. TOY,
Poultry Instructor and Manager of Trials.

11th December, 1923.

† Calculated on London wholesale prices (Ministry of Agriculture's Market Report).

* Winner of Monthly Ribbon.

APPLICANTS FOR MEMBERSHIP.

Willsteed, Miss J., Fire Station, Victoria Road, Cowes.
Lander, Miss M. G., Ninfield, Battle.
Thompson, Maj. W. R., Val des Portes, Alderney, C.I.
Lord, Wm. R., "Ashmead," Garstang.
Prosser, Thos., Lower Cumdanddur, Llanddu, Brecon, S. Wales
Tennant, Wm. A., Kent House, Middleham, Yorks.
Mackenzie, H., Clack Na Faire, Pitlochry.
Browning, Mrs. L. Z., Compton House, Compton Greenfield, Bristol
Robbins, Miss B., "Willersey," Vicarage Farm Road, Hounslow
Dyson, Fred., Wood Close House, Chapel Hill, Linthwaite, Huddersfield
Youngman, Mrs. L., Rock House, Alfington, Ottery St. Mary, Devon
Greenwood, W., Bank View House, Todmorden, Yorks.
Graham, G. A., The Croft, S. Mundham, Chichester, Sussex.
Taylor, H., Bank End, Netherton, Nr. Huddersfield.
Younger, Wm. R., Claydene, Edenbridge, Kent.
Aitken, W. W., 2, New (St. David's) Road, East Cowes, I.O.W
Barton, J. S., P.O. Box 43, Kokstad, East Griqualand, S. Africa.
Plowden, Edmund, Braeside, Ashurst Wood, East Grinstead, Sx.
Haynes, W. J., Sea Mount, Ramsay, Isle of Man.
Hicks, Bertram, 146, Highbury Hill, London, N.5.
Hay, Maj. J. B. W., Barkham, Nr. Wokingham, Berks.
Norman, Miss G. A., "Woodcot," Cobham, Surrey.
Harding, Wm., "Highfield," Downton, Wilts.
Staples, J. L., Mayfield Poultry Farm, Grateley, Hants.
Polite, Douglas, "Montrose," Pylous Road, Old Colwyn, N. Wales
Green, E., Albion Mills, Chester.
Perks, A. W., Breaston, Nr. Derby.
Brownhill, Miss G. A., The Parsonage, Talkin, Carlisle.
Elliot, G. H., Talkin Poultry Farm, Brampton, Carlisle.
Bocking, G., Green Dragon, Fordham, Cambs.
Blake, A. E., Roseneath, S. Kilworth, Rugby.
Bolton and Gardner, Messrs., Prospect P.F., New Moston, Manchester.
Mansfield, Mrs. E. R., 19, Wenvoe Terrace, Barry, Glam.
Williams, W. H., "Roseland," Pen-y-Ffordd, Nr. Chester, N. Wales.
Harrison, Mark, Elmswell Hill, Bury St. Edmunds.
Maule, Capt. H. C., The Bungalow P.F., East Bergholt, Suffolk.
Gribbob, A. R., Ardvarna, Strandtown, Belfast.
Evans, R. F., Steppinghill, Chinnor, Oxon.
Newling-Jones, J., "Wendy," N. Trade Road, Battle.
Hannaford, G., Brancaster, King's Lynn.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, JANUARY 4th, 1924.

GRAIN AND FEEDING STUFFS.—The markets have hardly recovered yet from the slackness of the Christmas holiday season. Home-grown wheat continues to be offered sparingly, but demand is inactive and prices remain unchanged at all markets from which reports are received. Trade in imported wheat is somewhat irregular, and no very serious alterations are recorded in quotations. Best samples of British malting barley are not over plentiful and demand is steady, while feeding samples are in request, with prices tending against buyers. Imported grinding barley also has a distinctly dearer tendency. English oats are a quiet trade, although finest samples of white oats, together with blacks and greys, are stated to be in demand in London. Quotations are practically unchanged, but the tendency is in a downward direction. Imported oats are definitely cheaper. There is only a moderate demand for maize, but supplies are not abundant and prices are very firm.

Milling offals are in good demand in London, but elsewhere trade is somewhat irregular. Bran is dearer at Bristol but cheaper at Hull, and, on the average, there is little alteration in prices. Oilcakes meet with a very limited enquiry; linseed and cotton cakes are generally cheaper, 9 per cent. linseed cake averaging £13 15s. per ton. A feature of the feeding stuffs markets is the strong demand for fish meal, which is scarce. From £19 to £21 per ton is now readily paid for grades of fish meal which were obtainable a year ago at £15 to £16 per ton.

MILLERS' OFFALS.—Bran (British): Bristol, £8 7s.; Hull, £7 12s.; Liverpool, £7 15s.; London, £7 5s. Broad Bran: Bristol, £9 15s.; Hull, £9 2s.; London, £8 5s. Fine Middlings (Imported): London, £10. Coarse Middlings (British): Bristol, £9 2s.; Hull, £8 10s.; Liverpool, £8; London, £8 10s. Pollards (Imported): Bristol, £7 15s.; Liverpool, £7 2s.; London, £7 12s. Rice Bran: Bristol, £7 15s.; Liverpool, £7 5s. MEAL.—Barley Meal: Bristol, £10; Hull, £9 15s.; London, £10 5s. Maize Meal: Bristol, £10 15s.; Hull, £10 1s.; Liverpool, £9 17s; London, £11. Maize Meal (S. African): Liverpool, £9 5s. Maize Germ Meal: Bristol, £10 5s.; Hull, £10; London, £9 12s. Maize Gluten Feed: Bristol, £10 15s.; London, £8 15s.

EGGS AND DEAD POULTRY.

English eggs are in better supply owing to the mild weather, but are readily disposed of at recent rates, and the average quotation of 33s. per 120 at London is 5s. higher than in the corresponding week last year. The best selections of imported eggs met a fair trade at slightly higher prices. Good supplies of poultry are available, and, although trade was poor immediately after Christmas, there was some improvement later, when large numbers of turkeys were disposed of for the New Year festivities. Turkeys are decidedly cheaper, and best quality average 1s. 5d. per lb. as compared with 2s. 3d. a fortnight ago. Other descriptions of poultry, however, show little change in price, except in London, where fowls and ducks are cheaper.

Week-end prices—Eggs (per 120): British, 33s., 30s.; Irish, 30s., 27s.; Danish, 33s., 30s.; Dutch, 37s., 32s.; French, 31s., 24s.; Australia, 26s., 24s. 6d.; South African, 25s., 19s. 6d.; Russian, 21s., 15s.

Dead Poultry (per lb.): Fowls—Surrey, 1s. 8d., 1s. 6d.; Irish, 1s. 2d., 10d.; Others, 1s. 3d., 11d. Ducks, 1s. 2d., 1s. 0d. Geese, 1s. 0d., 8d. Turkeys, 1s. 3d., 10d.

EGGS.

Per Doz.—Ashford: First, 2s. 1d.; Second, 1s. 10d. Birmingham: First, 3s. 2½d.; Second, 2s. 9½d. Carlisle: First, 2s. 9d. Chelmsford: First, 2s. 7¾d.; Second, 2s. 4¾d. Derby: First, 2s. 11d. Dorchester: First, 2s. 4d. Exeter: First, 3s. 0d. Hereford: First, 2s. 0d. Hull: First, 2s. 9d. Ipswich: First, 3s. 0d. King's Lynn: First, 2s. 6d.; Second, 2s. 3d. Lincoln: First, 2s. 9d. Llandilo: First, 2s. 9d.; Second, 2s. 6d. Newport (Mon.): First, 3s. 2d.; Second, 3s. 0d. Norwich: First, 2s. 10d.; Second, 2s. 7d. Penzance: First, 2s. 3d.; Second, 2s. 2d. Salisbury: First, 2s. 2½d.; Second, 2s. 1d. Shrewsbury: First, 2s. 6d.; Second, 2s. 3d. Skipton: First, 3s. 0d. Taunton: First, 2s. 4d. Truro: First, 2s. 4d. York: First, 3s. 0d.; Second, 2s. 9d.

FOWLS.

Per lb.—Birmingham: First, 1s. 3d.; Second, 9d. Carlisle: First, 1s. 2d.; Second, 11d. Derby: First, *5s. 6d.; Second, *3s. 0d. Exeter: First, 1s. 8d.; Second, 1s. 6d. Hereford: First, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Llandilo: First, 1s. 7d.; Second, 1s. 5d. Newport (Mon.): First, 1s. 5d.; Second, 1s. 2d. Shrewsbury: First, 1s. 6d.; Second, 1s. 4d. Truro: First, 1s. 2d. York: First, *5s. 6d.; Second, *4s. 6d.

DUCKS.

Per lb.—Birmingham: First, 1s. 2d.; Second, 1s. 0d. Carlisle: First, 1s. 3d.; Second, 1s. 0d. Derby: First, *6s. 6d.; Second, *4s. 0d. Exeter: First, 1s. 6d.; Second, 1s. 3d. Hereford: First, 1s. 3d. Llandilo: First, 1s. 7d.; Second, 1s. 5d. Newport (Mon.): First, 1s. 3d. Shrewsbury: First, 1s. 10d.; Second, 1s. 8d. York: First, *6s. 6d.; Second, *5s. 6d.

* Per Head.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, January 16th. 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

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EDITORIAL.

INHERITANCE OF EGG QUALITY.

In last week's issue we gave some details of the research work of Dr. Benjamin, of the Cornell University, into the size, shape and colour of eggs. The conclusion arrived at was that these three characters were distinctly inherited.

This merely tends to confirm opinions which have long been held by many observers; it is not by any means a new discovery. But surely such a bald statement is in need of some modification or explanation, for if we examine the results we shall note that, even when like is mated to like, there is a very wide variation—so wide, indeed, that it is difficult for the lay mind to accept such a definite statement that these characters are distinctly inherited.

Let us take the following examples from the results quoted in the report:—

> When a large egg sire was mated to a large egg dam, 59 per cent. of the progeny laid large eggs.
>
> When a large egg sire was mated to a small egg dam, 35 per cent. of the pullets laid large eggs.
>
> When a small egg sire was mated to a large egg dam, 65 per cent. of the pullets laid small eggs.
>
> When a small egg dam and a small egg sire were mated, 82 per cent. of the offspring laid small eggs.
>
> When a round egg sire was mated to a round egg dam, 50 per cent. of the progeny laid round eggs.
>
> When a round egg sire was mated to a long egg dam, 45 per cent. of the progeny laid long eggs.
>
> When the reverse mating was made, 42 per cent. laid long eggs.

These figures are averages. They cover a large number of years.

If we had not these examples before us, we should be inclined to accept the bare statement that these characters were distinctly inherited. We are not in a position to say that it is not the case, nor are we trying to dispute it; we complain that it is too bare a statement, and implies confirmation of the old idea that "like begets like," which is misleading, although it is admitted that "like *tends* to beget like."

Is there not some danger of students of heredity, when they are studying a particular character, ignoring other characters and factors which may influence it, and materially affect their conclusions—environmental conditions, nutrition, for example? Is there not a tendency to forget that inheritance is from the race, and not from the immediate parent?

To take the question of size of egg first. When large egg parents were mated, 41 per cent. of the progeny did not lay large eggs. Yet we are told that size of egg is distinctly inherited. Assuming that to be the case, what were the factors which caused this 41 per cent. to lay small eggs? To what extent were they environmental, and to what to inheritance?

The environmental factors may be nutritional—i.e., the influence of the ration fed, climatic, disease, or any others incidental to incubation or rearing.

The next point for consideration is to what extent does selection for a particular character influence other characters which we believe to be inherited. Fecundity is racial, high fecundity is individual; the perpetuation of such a character necessarily depends on selective breeding, but continuous selection for high fecundity results in an early maturity, which all experience tends to show means decreased body size, and so the small egg. We may have two full sisters bred from large egg parents; one will mature and lay at five months old, the other may not lay until seven months. The first will not develop the size of body, neither will she lay such large eggs as her later-maturing sister; but, as a general rule, she will lay considerably more eggs. She may have inherited the large egg factor from her dam and sire, but she has inherited something else, that is the early maturing factor, and it is this latter which she will transmit to her progeny, or to a certain percentage of them. Thus the large egg factor, which may have been a racial character, is, shall we say, masked or inhibited by the early maturing factor, the result of continuous selection for a specific character—high fecundity.

Big egg males mated to small egg dams resulted in only 35 per cent. of the progeny laying big eggs. Big egg dams mated to small egg sires resulted in 65 per cent. of the progeny laying small eggs. What did the male actually transmit? Was it, in the first case, actually a large egg, or a later maturity to the 35 per cent. which laid the large eggs? In the latter case did the male transmit the earlier maturity to the progeny? These questions cannot be answered, because we do not know the history of the male's dam in either case.

Turning to the case of the shape of egg, when like was mated to like—i.e., round egg dam to round egg sire—50 per cent. of the progeny laid round eggs, what was *distinctly inherited here?* Curtis and Surface say that the size and shape of the egg were due partly to the structure of the hen's oviduct, which was probably an inherited character; but there is some reason to believe that it is largely affected by the bodily condition of the bird, and also by the size of the yolk.

When we come to the colour factor, we find there is even greater variation. The experienced breeder will tell you that selection for high fecundity will tend to the production of eggs of a lighter tint. If we take the Croad Langshan we may definitely say that the colour of egg for which this breed is so famous is distinctly inherited; but when we begin selecting for high fecundity, we gradually lose the tint of the egg, and we find that the progeny will not lay such dark coloured eggs as their dams—as a general rule. Again we shall find that the colour of the shell is to some extent governed by the bodily condition. If a pullet which has been laying heavily becomes broody, she will, when she resumes laying, lay an egg of a darker tint; the same thing will occur when a hen begins laying after the moult. What is important for us to remember is that inheritance is from the race, and that selection for any specific factor is more often than not at the expense of other factors of equal importance. Thus continuous selection for high fecundity is at the expense of size of egg, because high fecundity and early maturity are correlated.

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

GOOD LAYERS AND GOOD BREEDERS.

I take the following from an article by Mr. Frank L. Platt, in the "American Poultry Journal." It is of extraordinary interest to students of breeding. Note particularly Nos. 2 and 3. The males here were full brothers, and the variation in the progeny, not only as regards these two males, but as to the pullets bred from the different hens to which they were mated, is very wonderful. It should be said that the male heading Pen 2, although producing a high percentage of highly fecund daughters, failed as regards size and colour of eggs, and for this reason his value as a breeders is largely discounted. The male in No. 4 was a prolific breeder. The 210 dam and the 171 were full sisters, the pullets bred from the latter proved much the better. Recently, when writing on breeding and production, I suggested that the best breeders were hens with records of round about 180 to 220, and one of my readers remarked that he thought that 180 was too low; but it will be seen that this 171 dam proved quite a good breeder, her pullets averaging 182.2 eggs each, while those of the two hens with records of 264 and 265 averaged only 162.4 and 181. What is of greater importance than either the L2 factor, or the high records, is that the pullets should carry Hurst's five genetic factors. This is only a personal opinion, of course, but I must say I think, as I have said before, that the connection between the date of the first egg and the number laid during the first six weeks' of a pullet's laying career, is of greater importance than either the L2 factor or winter production. I wish our National Poultry Institute would make this test.

(1) Male 2,020, was out of a hen that laid 224 eggs in one year, and his sire's dam had a record of 227 eggs. This male, No. 2,020 was mated to four hens, with egg records as follows, and the union produced daughters with records as follows:—

Hens mated to 2,020 were:

Daughters of above four hens produced pullets as follows:—

238 eggs	256 eggs	235 eggs	197 eggs
171 eggs	189 eggs	157 eggs	177 eggs
253 eggs	162 eggs	245 eggs	166 eggs
133 eggs	221 eggs	165 eggs	184 eggs
162 eggs	171 eggs	123 eggs	155 eggs
151 eggs		115 eggs	172 eggs
			141 eggs
			139 eggs

The above mating produced three daughters that laid 200 or more eggs in one year, each hen producing one such daughter, except the 197 egg mother which has no 200 egg offspring. Considering the breeding back of the sire, this whole mating gave very ordinary results.

(2.) Now we came to male No. 2227. He was the son of a 278 egg hen. The dam of his sire laid 310 eggs. He was mated to three hens, as follows:—

Daughters of above three hens produced pullets as follows:—

210 eggs	213 eggs	224 eggs
260 eggs	219 eggs	202 eggs
228 eggs	271 eggs	204 eggs
194 eggs	242 eggs	227 eggs
130 eggs	254 eggs	244 eggs
179 eggs		227 eggs
191 eggs		224 eggs
123 eggs		249 eggs
193 eggs		223 eggs
		213 eggs
		190 eggs
		243 eggs
		235 eggs

Commenting on the above mating, Prof. Graham states:

"The general results of this mating are exceptionally good. Our experience has been that but few matings produce as many high laying stock as this one. The 213 egg hen produced every daughter better than herself. She also produced the highest laying individual.

"The 224 egg hen had a large number of daughters indicating exceptional breeding ability for numbers. It is rare to get a hen with so many daughters that are all good layers. This is a very excellent hen, and should be good foundation for a high laying family.

"The 210 egg hen does not breed as many high-laying daughters, and there is a wide variation among them. It is questionable if this hen had been bred to an average male whether her offspring would be very good. Sons of the other two hens should be good males from which to breed."

(3.) We now come to a third mating, record of which is available. In it a Barred Rock male (No. 2240) was used. He was a full brother to the splendid breeder which headed mating 2, and was bred from the same mother (record 278), and from the same father (whose dam had a record of 310). He was mated to three good hens, yet the mating failed decidedly to equal the one just previously reported (No. 2). Let us see.

Male No. 2240, was mated to three hens, as follows:—

202 eggs	256 eggs	230 eggs

They produced daughters as follows:—

169 eggs	224 eggs	263 eggs
211 eggs	145 eggs	202 eggs
183 eggs	147 eggs	233 eggs
214 eggs	187 eggs	105 eggs
	134 eggs	180 eggs
	147 eggs	
	183 eggs	

Commenting on this result, Prof. Graham states:—

"The daughters of male No. 2240 are, on the average, distinctly lower in egg production than those of this brother, No. 2227. The 202 egg mother has two daughters better than herself, and the 230 egg hen has three daughters above 200. She has one very poor daughter. Particularly would one desire to see the offspring from these two hens from such a male as 2227.

"The 256 egg hen, although she herself has a high record, has no daughters her equal, and most of the daughters are low producers. This hen might be discarded as a breeder.

"The good pullets from the 202 and 230 egg hens might be worth breeding trials. As for their brothers, the cockerels, they might be good breeders, but one would prefer them sired by a better male than 2240 has proved to be."

(4) We come now to the fourth mating recorded by Prof. Graham. It is headed by a male, No. 1518, who is a half brother to the two males that headed matings 2 and 3. His dam laid 202 eggs, and his sire's dam, 310 eggs. He was a prolific breeder, being mated to seven hens, each of which produced four or more daughters. These seven hens and their daughters are in the following order:

Hens:

197	210	171	258	262	264	265

Daughters:

143	137	229	210	277	105	224
221	116	218	242	278	263	164
144	180	215	190	137	157	222
179	166	201	234	198	95	131
	199	181	216	203	190	168
		211	234	210	161	
		164	212	144	196	
		150		180		
		116		187		
				166		
				168		
				160		
				222		
				209		

If we make a summary of these four matings, we will find that the average egg production of the 17 mothers was close to 229 eggs, and the average egg production of their 112 daughters was about 187 eggs.

Egg Production of Mother	Number of Daughters.	Average Egg Production of Daughters
238	5	174.
256	4	185.75
235	5	161.
197	7	162.
210	8	187.25
213	4	246.5
224	12	223.4
202	4	194.25
256	7	166.7
230	5	196.6
197	4	171.75
210	5	159.6
171	9	182.2
258	7	219.7
262	14	195.
264	7	162.4
265	5	181.
Averages 228.7		186.71

GENETICS.

I see that in America they think that we are ahead of them in our general appreciation of Mendelism, and Professor Lippincott thinks we take more kindly to genetics because we do a great deal of cross-breeding work over here. He instances Mr. Toovey, who, he says, makes crosses involving sex-linked inheritance, by means of which he can separate sexes at hatching. I don't think many of us will agree with the Professor, and I am inclined to think that up to, say, two years ago. when the interest in this sex-linked inheritance became greater, that there was comparatively little cross-breeding—far less, indeed, than there was 10 years ago. Whether we do appreciate this subject more than they do in the States, or not, it is impossible to say, and one would hardly say that cross-breeding itself indicated a great appreciation of Mendelism. Indeed, cross-breeding up to the last year or two has been a very haphazard affair. We must look to some other cause than this; possibly it is because we have realised its value, and the S.P.B.A. has kept the subject very much to the fore during the last eight years.

SEX-LINKED INHERITANCE.

I have received the following letter from Dr. Crew. I am sure that all our readers, who are in a position to do so, will do what they can to help him in his valuable work. All communications should be addressed to F. A. E. Crew, Esq., M.D.D.Sc., Director, Animal Breeding Research Department, High School Yards, The University, Edinburgh:—

"At the request of many poultry breeders, this Department is issuing a bulletin on "A Method of Distinguishing the Sex of Young Chickens," in which all information concerning the application of the new established laws of sex-linked inheritance will be made available.

"In order to make the information as complete as possible, we wish to obtain a large number of: Dead-in-shell (14-21 days), dead day-olds, and also photographs and feathers from adults from Gold x Silver, Barred x Non-barred, Spangled x Not Spangled matings.

"Will those breeders who are cross-breeding, in a large or small way, kindly communicate with us.

"F. A. E. CREW, M.D., D.Sc.,
Director."

HANDLING AND OBSERVATION.

Mr. A. K. Speirs Alexander, who is doing such excellent work in Norfolk and Norwich, is expert to the Norfolk and Norwich Utility Poultry Circle. He is using our "Handling and Observation" Charts at the village lectures, of which he is giving a series in various centres at the schools to mixed evening audiences. During this month he is taking seven centres, and is also contributing some most interesting notes to the "Eastern Daily Press."

I once had the pleasure of visiting Mr. Alexander's farm at Roughton. He had some most excellent stock there, kept under purely rural conditions in a bleak and exposed position. I am sure that poultry-keeping in Norfolk will be given a tremendous impetus by his lectures and demonstrations.

THE REGISTER.

The Editor desires to express his regret that, through an oversight, the pens of birds entered by the South Hants Poultry Farm, Scrag Hill, Romsey, were omitted from the Register. Pen 1, of R.I. Reds, contained hens with individual records of 228 to 283 (12 hens), mated to the son of a 260-egg sire. Pen 2 contained hens with records of from 219 to 268, mated to the son of a 246-egg hen.

In White Wyandottes the first pen of hens with twelve months records of 235 to 293, headed by the son of a 292-egg hen. Pen 2, 10 birds, with records of 214 to 243, headed by the son of a 255-egg cockerel.

White Leghorns. The son of a 276-egg hen headed a pen with records of 228 to 255. Pen 2 consisted of twelve hens with records of 205 to 228, mated to the son of a 239-egg cockerel.

INCORRECT ADDRESSES.

The following corrections of addresses are given:

J. Thomson Brown, St. Dunstan's Poultry Farm,
King's Langley, Herts.

Miss D. Ovenden, "Oakshield," Woodmere
Avenue, Monk's Orchard, Croydon.

A. K. Speirs Alexander, The Poultry Farm,
Roughton, Via Norwich.

THE CHELTENHAM BRANCH.

The Branch held their Monthly Meeting on Wednesday, January 2nd, at 7 p.m., in the Headquarters Room (Messrs. Young and Gillings, Sale Rooms), Promenade House, Cheltenham. The President, Mr. E. Bacon, was in the chair. The room was well filled—in fact, I think a record meeting. Amongst those present were: Mr. J. H. Evans, Vice-President; Mr. L. G. Price, County Instructor in Poultry-keeping; Mr. D. K. Nuttall; F. R. Welsh; H. Roberts; J. Loder; W. H. Tyers; and R. A. Johnson. Mr. R. A. Johnson kindly read a most interesting and instructive paper on the "Formation and Constructions of the Egg," "Incubation—both natural and artificial." He took particular pains in explaining the difference between hot-air and hot-water machines of various makes, the development of the chick during incubation, etc., also referred to the Egyptian method. Concluding his lecture on "Feeding and Food Values," he was bombarded with questions which he very ably answered. A hearty vote of thanks was accorded Mr. R. A. Johnson. Two members were enrolled. A visit to the Glevum Incubator Works, Gloucester, was proposed by the Secretary, and carried unanimously. This visit to take place during the month at a date convenient to the proprietor, H. Stephens, Esq.

KEIGHLEY AND DISTRICT BRANCH.

The second period of four weeks of the Keighley and District Branch, of the Scientific Poultry Breeders' Association, Laying Test (single bird), which is held at Minorca Farm, Denholme, concluded on December 26th. The results up to date are very satisfactory in the Heavy Breeds, but only fair in the Light Breeds. Very severe weather still continues.

The scoring is as follows :—First grade eggs $1\frac{3}{4}$ ozs., second grade less than $1\frac{3}{4}$ ozs. The first twelve eggs under $1\frac{3}{4}$ ozs. are allowed to score.

LIGHT BREEDS.

Position.	Name.	1st. grade.	2nd grade.	Score value.
1.	S. Lawton (W.L.) …………	38	—	38
2.	S. Preston (W.L.) …………	27	1	28
3.	S. Lawton (W.L.) ………	27	—	27
4.	W. Robinson (W.L.) ……	16	10	26
5.	A. Butterfield (W.L.) ……	25	—	25
	W. Bancroft (Ex. L.) ……	24	1	25
6.	Capt. Owen (W.L.) ………	17	3	20
	J. E. Robinson (Ex. L.) …	8	18	20
7.	Mrs. F. Wilson (W.L.) …	17	1	18
8.	H. Kershaw (W.L.) ………	17	—	17
	Mrs. J. R. Thompson (W.L.)	17	—	17
	H. Calvert (Br. L.) ………	12	5	17

Other scores are:—No. 67 (14), No. 19 (10), No. 44 (10), No. 18 (9), No. 31 (9), No. 33 (9), No. 37 (8), No. 40 (7), No. 17, (7), No. 59 (4), No. 70 (4), No. 65 (4), No. 69 (3), No. 1 (3), No. 38 (2).

HEAVY BREEDS.

Position.	Name.	1st. grade.	2nd grade.	Score value.
1.	S. Preston (Buff Rock) …	36	—	36
2.	A. Holcroyd (Red) …………	35	—	35
3.	H. Downsborough (W.W.) …	34	—	34
4.	J. E. Robinson (Red) ……	32	—	32
5.	H. Kershaw (Red) …………	26	4	30
	J. R. Waddington (Buff Rock)	18	22	30
6.	S. Lawton (Sussex) ………	29	—	29
7.	H. Kershaw (Red) …………	26	1	27
8.	F. Hodges (Red) ……………	25	—	25
	H. Nelson (W.W.) ………	25	—	25

Other scores are :—No. 47 (23), No. 61 (22), No. 2 (21), No. 45 (20), No. 62 (19), No. 10 (18), No. 16 (18), No. 27 (17), No. 30 (16), No. 43 (15), No. 63 (14), No. 28 (13), No. 6 (13), No. 56 (12), No. 29 (11), No. 35 (11), No. 20 (7), No. 57 (5), No. 13 (5), No. 32 (4).

The Manageress does not wish to be discourteous, but she would be pleased if competitors would observe Rule II. and only visit the Test on the first Tuesday and the last Saturday in the month from 2 to 4 p.m. The busy season is now on and time is precious.

Modern Poultry Feeding.

By TOM NEWMAN.

THE WELLINGHAM EXPERIMENTS.—REMARKABLE RESULTS.

Below are the results of the experimental feeding at Wellingham to the end of the third period of four weeks which I have just received from Miss Malcolm. It will be seen that in "A" pen four of the pullets have neck-moulted, while three have done so in "B," four in the control pen, and one in "C," while one bird in "B" and another in "C" are suffering from colds.

Taking these facts into account, and the very bad weather we have experienced throughout this period, the records are remarkable, when we remember that these are not selected birds, but were merely taken from a flock, and simply selected because they were of the same age and breeding. There are ten April-hatched White Leghorn pullets in each pen.

It will, perhaps, be convenient to my readers if I repeat the mashes here, and ask them to remember that it is only the mashes that differ, each pen is of the same age and breeding, and the housing conditions are the same. Each pen is receiving 1½ozs. of kibbled maize daily as the grain feed.

Pen A.—2lbs. Bran, 4lbs Middlings, 1lb. S.G.O., 1lb. Maize Meal, 1lb. Fish Meal. Eggs laid October and November, 215; December 141—353.

Pen B. 2lbs. Bran, 4lbs. Middlings, 1lb. S.G.O., 1½lb. Soya Bean Meal, ½lb. Fish Meal. Eggs laid: October and November, 200; December, 159—359.

Pen C.—2lbs. Bran, 4lbs. Middlings, 1lb. S.G.O., 1¾lb. Soya Bean Meal, ¼lb. Fish Meal. Eggs laid: October and November, 252; December, 185—437.

Pen D.—Control Pen: Mash, Milk, 1½lbs.; Ceremalo, ½lb.; Middlings, 5lbs.; Bran, 2lbs. Eggs laid: October and November, 189; December, 153—342.

WELLINGHAM EXPERIMENTS.

"A" Blue Ring.

Ring No.	Eggs.			Amount Consumed.	Cost.
	Dec.	To Date.			
121	N. Mo.	18			
228	13	34			
	N. Mo.				
235	12	14			
249	21	62	Mash.	56 lbs.	5/8.8331
250	19	42			
337	18	29			
	N. Mo.			lbs. ozs.	
384	7	33	Grain.	28 2	3/1.6673
	N. Mo.				
388	6	25			
401	22	53			
405	23	43			
				lbs. ozs.	
Totals ...	141	353		84 2	8/10.5004

"B" Red Ring.

Ring No.	Eggs.			Amount Consumed.	Cost.
	Dec.	To Date.			
	N. Mo.				
80	5	21			
	N. Mo.				
206	11	26			
207	16	31	Mash.	60 lbs.	5/11.5177
	N. Mo.				
210	8	22			
217	18	38			
271	24	55		lbs. ozs.	
292	21	47	Grain.	28 2	3/1.6673
303	24	52			
	Cold				
508	11	22			
524	21	45			
				lbs. ozs.	
Totals...	159	359		88 2	9/1.1850

"C" Green Ring.

Ring No.	Eggs.			Amount Consumed.	Cost.
	Dec.	To Date.			
213	22	51			
229	18	43			
256	21	47			
257	22	51	Mash.	62 lbs.	6/- .2871
265	19	42			
273	23	43		lbs. ozs.	
410	22	53	Grain.	28 2	3/1 .6673
411	23	46			
	N. Mo.				
413	5	28			
	Cold				
525	10	33			
				lbs. ozs.	
Totals ...	185	437		90 2	9/1 .9544

"D" White Ring.

Ring No.	Eggs.			Amount Consumed.	Cost.
	Dec.	To Date.			
79	22	46			
138	18	30			
234	19	44			
261	25	46	Mash.	48 lbs.	6/2 .3568
333	21	41			
387	23	47			
	N. Mo.			lbs. ozs.	
389	5	40	Grain.	28 2	3/1 .6673
392	20	32			
394	N. Mo.	10			
285	N. Mo.	6			
				lbs. ozs.	
Totals ...	153	342		76 2	9/4. 0241

It will be seen that the pen C., on the lowest percentage of fish meal, and the cheapest mash, has not only maintained its lead, but has actually increased it. True, they have been almost free from the neck moult from which the other pens have suffered, but that we may attribute to the feeding, rather than any other cause, as the conditions do not differ in any other respect. I must confess I am surprised at the result. I fully expected that Pen "C" would hold its own, no more than that—that they should take such a strong lead is very surprising. As fish meal is now £23 a ton, and soya bean can be bought at £12, the result of these experiments is very encouraging, as it will do much to assist us to cheaper feeding, or, at least, will help us to balance the greatly-increased price of the animal foods.

I am very anxious to try an experiment with a cheaper formula than "C," but it is too late in the season to think of it now; next year we must see what can be done. The health of the birds is all that can be desired.

Miss Malcolm has been good enough to work out the cost of the feeding, and it will be seen that Pen "C" has produced seven dozen more eggs that Pen "A" at an additional cost of threepence, or less than a halfpenny a dozen, and eight dozen more than the Control Pen, at a cost of threepence less.

It is interesting to note, too, that the production of these extra seven dozen eggs only involved an increased consumption of 6lbs. more mash, the total grain consumed being the same in all pens. In reply to many enquiries, the soya bean meal is the extracted—this is most important, as if the unextracted is used, owing to the oil, it will cause serious digestive trouble.

BALANCED RATIONS.

A reader writes:—'Some of my Black Leghorns have developed an ailment which I do not understand. I think it is liver. They are all right for a time, and then they show signs of yellow about head and wattles, and look miserable. In some cases, especially the cockerels, they have got right again without treatment. Bad cases I destroy. The grain feed is: Equal parts oats, split round corn and wheat; mash, five parts middlings, three bran, one clover, one fish meal."

This is a case of digestive trouble caused by excess of fibre in the mash, further the bulk of this mash was so great that the appetite might have been satiated without the birds being able to derive sufficient nourishment from it, and again the whole ration was deficient in fats. It was thoroughly unbalanced. I wonder if Capt. Leeney ever gets such cases as this. I know that disease is caused by excess of animal protein, or excess of fatty foods, but I have never yet seen in any report any reference to excess of fibrous matter.

Here is another letter, the writer was only getting five eggs a day from 230 April pullets. The grain feed was two parts oats, one wheat; and the mash six parts middlings, three bran, one palm nut kernel meal. half meat meal. One ounce of grain was given as the last feed, half-an-ounce first feed, and the wet mash two-and-a-half ounces weighed dry at midday. The bird were described as being splendidly healthy and looked like laying. The advice given was to cut the bran out of the mash, and one part maize meal was added, the grain ration altered to equal parts wheat and kibbled maize. At the end of the week 30 per cent. of the birds were laying, at the end of a fortnight this had jumped to 45 per cent. So often I get letters saying: "My birds are in the pink of condition, but they are not laying." That is just it. They have no more than a maintenance ration, and there are so many like that.

Now take one more case, and I have done, the formula used was one of my own, but instead of the mash hoppers being open all day, the birds were given a full two ounces of grain in the morning, and the hoppers not opened till 1 o'clock, the consequence was that the birds did not consume enough mash, and the ration was unbalanced. When the scratch feed was given in the morning, the mash hoppers open all day, and the balance of the grain fed as the last feed, there was very soon an improvement in egg production. These are the little things that make all the difference.

CLOVER MEAL.

Someone sent me a sample of "clover meal" obtainable from a neighbouring farmer at £4 a ton. It was, of course, nothing but the residue from the threshing of clover for seed, the seed hulls, fit for litter only. A week or two ago I received the same thing, only that it had been screened, and the roughage taken out, and the price asked was 24s. a cwt.

POISONING.

By Capt. H. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

Fowls are believed to be poisoned more often than any other of the domesticated species of animal. Is it a fact? I suppose the majority of poultry-keepers would endorse the view that they are.

There are reasons for it. The fowl is omnivorous as to food, and domestication for unnumbered generations has deprived the creature of that discretion and suspicion which is more highly developed in rats than any other animals in this country, not excepting foxes. Then its habit of searching for natural food in all sorts of places, including hedge bottoms and drains, and places where things have been thrown away, afford chances of picking up poison from discarded paint pots, poisoned rats, or the maggots from such as have died. Curiosity leads the fowl to sample things that are left about, whether bags of artificial manure or packets of arsenical sheep-dip, horticultural poisons and spraying preparations, and, not being fastidous as to water, poisons are sometimes taken in this way. In a case where a continuous loss was sustained by lead poisoning, it was found that an open keg of white lead had been thrown into a pond by a thief who was unable to get away with it. But for a drought, this supply of poison would never have been found. The most valuable dog I ever possessed was killed by poisoned food carried by a rat seventy yards from where it was placed in a drain, and discarded as doubtful by him. It sometimes happens that sacks, bags, and various packages are used to carry innocuous substances on one occasion and poisonous things on another. A number of fowls died after two valuable horses had been killed by weed killer upset in a corn bin. And so one might multiply the number of cases of poisoning from carelessness and pure accident in the experience of one veterinary surgeon, but what about the wilful poisoner, the fowl assassin! Who has not met with the infuriated gardener, who has said in his haste that he would "do for" the trespassers that have raked over his seed beds? Does he carry out his threat? No, not once in a thousand times. When he has cooled, he refuses to listen to the suggestion of his "solicitor," as sailors say when referring to the Devil, although he may harbour ill-will indefinitely.

We need not define a poison here, but it should be understood that in medical or veterinary descriptions, poisonous or toxic doses do not necessarily mean fatal ones, but causing illness or distress. A distinction may be made between lethal and toxic doses in the notes to follow in these articles.

The knowledge of posology, or the doses suitable for fowls, has not passed the elementary stage. Thousands of experimental doses must yet be given before it can be definitely ascertained what is a poisonous and what a therapeutic or medicinal one of many of the common drugs long used for human beings and for quadrupeds.

One of the commonest forms of poisoning is from arsenic, acquired from sheep dipping powders and wart dressings, etc. Now let us look at the dose. For a man, one-twentieth to one-tenth of a grain. One to two grains may prove fatal. For a horse, one-twelfth to 2½ grains is the medicinal dose. Twelve grains have killed a horse, although such doses are tolerated if approached gradually, and taken with food. Sheep take one to two grains (given for tapeworm), and goats are more tolerant than sheep.

No experiments have been published that have been conducted in this country, because we are hampered by the Vivisection Acts, which include all experimental doses and necessitate a license, and place a hindrance in the way of progress. We are therefore indebted to foreign authorities for much of the information which is to follow, notably to Professor Gallagher, of the Bureau of Agriculture, Washington, D.C. This is not to say that the present writer hasn't done a little on his own, but for the reason given above could not witness against himself for practising such monstrous cruelty as giving, for instance, a dose of magnesia to a fowl. If the owner of an animal gives an injurious or even fatal dose of any crude remedy with a view to cure disease, he is exonerated by the law from the charge of cruelty, but if he gives the most innocent drug by way of experiment, he is guilty of contravening the Antivisection laws. Is the law " a hass,' or should we remain in ignorance until such time as permission has been obtained and a licence granted to vivisect? According to their preconceptions or opinions, readers can answer themselves.

The immense variation in the doses tolerated by animals will be seen by comparing the very accessible poison, arsenic. A horse weighing 8 or 10 cwts, is given a medicinal dose of one or two grains, and, as already stated, one such animal was killed by 12 grains. Sheep take one or two grains, but it takes five grains to kill a fowl weighing about 3 lbs., and several that were given 5 grains showed "no results." Three grains of corrosive sublimate (perchloride of mercury) were given to a fowl with no effect, although such a dose would probably be fatal to a man. Fowls on land short of lime—a very general condition in large areas of Great Britain—will eat greedily of fresh-burned lime when they find it. A teaspoonful is a toxic dose. Fresh-burned lime should therefore not be shot down where poultry have access. Calomel, as most readers are aware, is given in one to five grain doses; seldom as much as five grains as a liver stimulant, but Gallagher gave 30 grains to a fowl, and reports on it as follows:—"Evidence of purging. Droppings greenish. Fowl has not been visibly affected otherwise." Space does not allow of further comparisons, for which the Editor will be asked to find room on another occasion.

PRINCIPAL POINTS OF LECTURE BY PROF. DOUGHERTY, CALIFORNIA.

Mr. Dougherty stated that California is primarily a commercial poultry state, and that commercial poultry is interested in profit. Show the profit and increased production is assured, but the present cost of food has cut down profits and worried the commercial poultryman.

Farmers were the men in the best position to produce eggs economically, but in California the farm flocks were often small and unprofitable. He presented these figures:—

On the COMMERCIAL PLANT:—

	Dollars.
Feed cost (exclusive of green stuff) per bird per year, 75 lbs. at 4 cents per lb. (war time prices)	3.00
Overhead charges	.60
Total expenses, exclusive of labour	3.60
10 doz. eggs per bird per year, cost of production ... ... per doz.	.36
12 doz. eggs per bird per year, cost of production ... ... per doz.	.30

Where the flock averages 120 eggs per bird per year, the poultryman gets for his labour what the eggs sell for over the 36 cents per dozen, or where the flock averages 144 eggs per bird, he gets for his labour what the eggs sell for over 30 cents per dozen.

The Chamber of Commerce at Petaluma had estimated that, in the Petaluma District, the average production of eggs per bird per year was 140 eggs. Mr. Dougherty's estimate for the State was 130 eggs.

On the FARM :—

	Dollars.
Where hens forage for one-half of their feed costs	1.50
½ overhead, reduced by lack of yards, etc.	.30
Total expenses, exclusive of labour	1.80
10 doz. eggs per bird per year, cost per doz.	.18

In view of these figure, Mr. Dougherty believed in stimulating egg production on the farm. To do this the farmer must be made to take the same interest in chickens that he did in hogs or alfalfa. He would, if he were shown that there was a profit in it. California has adopted the slogan :—**300 fowls on every farm.** The speaker said he felt it was the part of the poultry departments of the colleges to teach the farmer better care of fowls and show him the opportunity for profit.

In discussing war-time rations, Mr. Dougherty expressed the belief that California Commercial poultrymen feed wheat where the farmers fed barley.

In further remarks Mr. Dougherty emphasised the need of reducing mortality in growing chicks. He gave the following figures :—

Average hatch 65 to 70 p.c. of eggs set.
Normal mortality up to 12 weeks of age, 20 p.c.
Normal mortality from 12 weeks on 5 to 10 p.c.

The amateur generally buys three times as many chicks as he can properly handle, often gets his brooder two days before the chicks arrive, and practices regulating it with the chicks in it. He over-feeds, with bowel trouble resulting ; over-crowds, and toe-picking begins. Mr. Dougherty recommends 300 chicks to a brooder, and replied to enquiry that this number was too small for economical handling with oil burner. Many Californian poultrymen were installing hot-water brooding systems in which chicks could be handled in groups of 200 to 300 to a compartment.

The speaker placed great emphasis upon soil-renewing by sprays and the growing of green stuff. The spread of many poultry diseases he held was due to contaminated soil. In conclusion, Mr. Dougherty said that great good would come from culling the laying flock if one could successfully remove the lower 10 per cent. For egg production he favoured birds of great vitality with long body of good depth. He believes in the abdominal measure test and in shank, vent and ear-lobe colour tests.

EGG-LAYING TESTS.

GLOUCESTERSHIRE MONTHLY REPORT.

The following is the report on the Gloucestershire Laying Test (under the supervision of Mr. L. G. Price, County Instructor in Poultry Keeping) for the second month ended November 30th.

In spite of the recent very cold weather, and numerous cases of moults, the results on the whole are satisfactory. During the two months 6,747 pullet, 279 "single" duck and 346 "pen" duck eggs have been collected. The death of one pullet in Section A has to be recorded; otherwise all are in good health.

Individual bird records may be obtained direct from the Manager of the Test on receipt of stamped addressed post card.

SECTION A.—LIGHT BREED (Professional).

Owner.	Points Awarded.	Grade. A.	B.	C.
G. B. Metcalfe	913	173	12	—
H. T. Godber	770	142	15	1
Hinton P.F.	695	135	5	—
F. A. Welch	693	109	37	1
R. Gray	683	131	7	—
Major G. Dugdale	681	133	4	—

All White Leghorns.

SECTION A.—HEAVY BREED (Professional).

Owner.	Breed.	Points.	Grade A.	B.	C.
P. S. Beales	W.W.	936	176	14	—
W. R. Partridge	W.W.	766	150	4	—
T. L. Davies	W.W.	760	136	20	—
P. M. Hinton	W.W.	689	137	1	—
G. H. H. Simmons	W.W.	689	133	6	—
W. O. Garbutt	W.W.	657	89	53	—

SECTION B.—LIGHT BREED.

(Confined to owners of not more than 50 Laying Head.)

Owner.	Points Awarded.	Grade. A.	B.	C.
Mrs. S. A. Brown	511	51	64	—
K. Wilson	494	94	6	—
*Mrs. D. Japp (B.L.)	446	82	5	—
J. A. Hall	353	69	2	—
J. D. Crewdson	270	46	10	—

All White Leghorns except position *.

SECTION B.—HEAVY BREED.

(Confined to Owners of not more than 50 Laying Head.)

Owner	Breed.	Points Awarded.	Grade A.	B.	C.
Maisemore School	W.W.	665	129	5	—
L. Grist	W.W.	637	125	3	—
Miss M. Lawrence	R.I.R.	446	82	9	—
C. G. Young	R.I.R.	250	42	10	—

SINGLE PEN SECTION.

SECTION 1.—WHITE LEGHORN.

Owner.	Points Awarded.	Grade. A.	B.	C.
Major G. Dugdale	250	50	—	—
Misses Ransford (2)	223	43	2	—
B. J. Greening	198	38	2	—
Sherborne Park P.F. (8)	190	38	—	—
J. E. Boyd	181	29	9	—
L. Grist	163	11	27	1

SECTION 2.—WHITE WYANDOTTE.

Owner.	Points Awarded.	Grade. A.	B.	C.
Lord Sherborne	242	46	3	—
P. Clapham	235	47	—	—
W. O. Garbutt (21)	230	42	5	—
W. R. Partridge (18)	215	43	—	—
Ditto. (23)	210	42	—	—
Miss H. Baylis	199	39	1	—

SECTION 3.—RHODE ISLAND RED.

Owner.	Points Awarded.	Grade. A.	B.	C.
F. W. Clifford	219	43	1	--
Miss H. Reed	169	33	1	—
A. Daunton (32)	165	33	—	—
Miss M. Lawrence	155	31	—	—
J. N. Horne	147	27	3	—
A. Daunton (44)	110	22	—	—

SECTION 4.—A.O.V. LIGHT BREED.

Owner.	Breed.	Points Aw'd.	Grade A.	B.	C.
G. B. Metcalfe	B.L.	184	36	1	—
H. S. Hitch	Ancona	180	28	10	—
H. L. Lemon	B. La Bresse	153	29	2	—
A. Daunton	Ancona	145	29	—	—
M. A. Greenway	B.L.	20	—	5	—
L. Grist	Ancona	—	Moult.		

SECTION 5.—A.O.V. HEAVY BREED.

Owner.	Breed.	Points Aw'd.	Grade A.	B.	C.
Major G. Dugdale	L.S.	250	50	—	—
Mrs. E. Weinholt	Aus. Orp.	209	41	1	—
J. L. Brown	L.S.	200	40	—	—
Miss M. Lawrence	B'Veld.	175	35	—	—
F. R. Welch	L.S.	140	28	—	—

SECTION 6.—DUCKS.

Owner.	Breed.	No. of Eggs.	Pts. Awd.	Under Wt.
J. N. Horne	W.R.	47	47	—
W. R. Partridge (8)	W.R.	46	46	—
Major G. Dugdale	K.C.	37	37	—
W. R. Partridge (10)	W.R.	34	34	—
Mrs. E. Weinholt	K.C.	34	30	4
C. G. Young	W.R.	28	28	—

PEN DUCK SECTION

(Four ducks to the pen).

Report for the first month ended November 16th, 1923.

Owner.	Breed.	No. of Eggs.	Pts. Awd.	Under Wt.
Major G. Dugdale	K.C.	63	63	—
B. Broom	W.R.	32	32	—
F. L. Walters	W.R.	30	30	—
Sherborne Park P.F.	W.R.	30	30	—
D. C. Herbert	K.C.	31	29	2
Bradley Agric. Sch.	K.C.	26	26	—

(Signed) R. A. and A. M. JOHNSON.
The Cotswold Poultry Farm, Chalford.

H. S. WRIGHT, Secretary.
Shire Hall, Gloucester

EGG-LAYING TESTS.

LANCASHIRE POULTRY FEDERATION'S COMPETITION.

The report for the second month, November 18th to December 15th, in the Lancashire Federation of Utility Poultry Societies' 12 months' egg-laying competition has just been issued by the secretary, Mr. E. Collier. The light breeds are penned at Mr. H. Hayes' farm, Tottington, who reports that the weather has been very severe during the month, and as the result of frost, snow, and cold winds one or two birds are being treated for a slight cold. One of Lieut. Farnworth's Leghorns died during the month. The heavy breeds are penned at Mr. W. Hammett's farm, Blackpool. Mr. Hamnett reports that the birds are in good health with the exception of four, which have slight colds and are isolated. Several birds have been broody, one for the second time in eight weeks. The egg output is improving after a slight drop at the commencement of the second month. Twenty-six birds have laid 20 eggs or over during the 28 days, and nine birds have not yet laid. The scoring is six points for first-grade eggs of 1⅞oz. and five points for a second grade eggs of 1¾oz.

The positions are as follows, the figures showing the number of eggs and points respectively:—

LARGE BREEDERS' SECTION.

LIGHT BREEDS (Three Birds).—1, R. H. Aspden, 89, 480; 2, R. Rodwell, 86, 477; 3, W. Braithwaite, 83, 455; 4, W. Barron, 77, 431; 5, J. Shaw, 86, 402; 6, Longworth Bros., 65, 351.

WHITE WYANDOTTES.—1, J. E. Helm, 111, 663; 2, W. Barron, 124, 622; 3, R. H. Aspden, 102, 612; 4, R. Moor and Sons, 94, 553; 5, R. Rodwell, 96, 542; 6, C. C. Humber, 94, 553.

A.O.V. HEAVY.—1, W. Wearden and Sons (R.I.R.), 109, 653; 2, T. Braithwaite (R.I.R.), 110, 588; 3, R. Moon and Son (R.I.R.), 85, 497; 4, J. Rainford (R.I.R.), 84, 473; 5, R. Green (R.I.R.), 71, 424; 6, H. Sutton (R.I.R.), 68, 374.

SMALL BREEDERS' SECTION (Single Birds).

LIGHT BREEDS.—1, F. and H. Evans, 32, 186; 2, H. Tattersall, 23, 133; 3, A. Spencer, 21, 124; 4, Mrs. J. A. Mellor, 18, 104; 5, F. and H. Evans, 18, 103; 6, J. Stanley, 17, 99.

HEAVY BREEDS.—1, W. Fletcher (W.W.), 42, 221; 2, W. J. Swarbrick (W.W.), 37, 202; 3, H. Ragnall (W.W.), 35, 179; 4, T. Windle (W.W.), 33, 176; 5, J. Pearson (W.W.), 28, 165; 6, S. B. Lonsdale (W.W.), 27, 145.

NOTTS. EDUCATIONAL LAYING TEST, 1923-4.

PEN TEST SCORE FOR NINE WEEKS, ENDED 2nd JANUARY, 1924.

25 Pens of Six Pullets in each.

Post.	Owner.	Breed.	Laid. Eggs	Weight.
1.	G. L. Moore, Radcliffe	W.L.	190	23 4 4
2.	D. G. Dearden, Kirton	W.W.	189	23 0 4
3.	Lady Selby, Sherwood	R.I.R.	167	20 15 9
4.	V. C. P. Blake, Aslockton	W.L.	169	21 3 11
5.	C. H. Allwood, Lound	W.L.	163	19 10 10
6.	Miss Burton, Norman Rd., Thorneywood	W.L.	166	18 3 8
7.	Mrs. Garner, Plumtree	W.W.	146	7 15 7

Total for week, 533 from 177 Pullets. Grand total for nine weeks, 5,996 eggs.

SINGLE PULLETS IN SEPARATE HOUSES FOR LIGHT AND HEAVY BREEDS, TRAP-NESTED.

LIGHT BREEDS:

Post.	Owner.	Breed.	Eggs Laid.	Weight.
1.	Washer, Edingsley	W.L.	43	4 9 3
2.	V. C. P. Blake, Aslockton	W.L.	37	4 8 12
3.	C. Burket, Laneham	W.L.	36	4 3 4
4.	A. J. Crawford, Costock	W.L.	33	4 0 12
	HEAVY BREEDS:			
1.	A. J. Crawford, Costock	W.W.	43	5 4 2
2.	S. Bourne, Eppestone	R.I.R.	34	4 6 5
3.	F. Brooks, Calverton	R.I.R.	36	42 2 9
4.	T. Litchfield, Tolon	W.W.	32	4 2 10

One pullet has died from Tuberculosis during the period. All others are healthy. The nests are open daily.

Visit to St. Dunstan's Laying Tests at King's Langley, Herts.

By JOHN MEEKINGS.

It was with very great pleasure I accepted, on behalf of the Council, Mr. Thomson Brown's kind invitation to inspect the competition recently started for the St. Dunstan's men.

The farm is situated in one of the prettiest parts of Hertfordshire, nestling on the slopes of charmingly wooded hills, which at this season of the year looked their best in varying autumn tints. Mr. Thomson Brown was kind enough to motor me over from Watford to his farm. There I was introduced to the Test Manager, and we at once proceeded to inspect the Test grounds.

I think readers of "Eggs" would like to know that this Test is being run exclusively for the blinded men of the Great War. There is no need for me to remind them of the very valuable work that St. Dunstan's has done in training these men for their various occupations; I think I am right in saying that over 200 such men are now carrying on poultry farming apart from the many who have been set up with a backyard poultry plant.

I was extremely interested when informed that every pen of birds entered in the St. Dunstan's trials were bred and selected by their blinded owners! It says much for the training of these men that of the 45 entries, comprising 180 birds, very few were really second class in type or poor in condition. White Leghorns and Rhode Island Reds seemed to vie for first place in popularity. I saw two excellent pens of Black Leghorns, a pen of La Bresse, one of Anconas, and one of Light Sussex. There were also a few Wyandotte entries, but undoubtedly the St. Dunstaners have plumped for the Leghorn and the Red. It is too early in the day, the Test only commenced on the 11th October, to prophesy, but I have every confidence in saying that there will be some interesting records put up by these birds. The Test is a five months' one, and will embrace that period which is most important in the hens' laying records; it began on October 11th, and will end on February 27th, 1924.

The birds were in their quarters a month before the trial began, and arrived in splendid condition, with one or two exceptions. They are, therefore, now comfortably settled down in quarters which should assist them in their most arduous task.

The birds are housed in four Hannaford houses, loaned for the purpose, capacious buildings providing ample floor and air space, and well lighted. The houses are in the centre of grass pens. I was glad to hear from the Test Manager that no hard and fast rules of feeding had been adopted by the Committee. The Committee, by the way, is very representative of the Institute. Mr. Thomson Brown and Mr. Gutbridge represent the official side of St. Dunstan's, whilst Mr. Capper speaks for the blinded officers. and Mr. Burgin voices the men's views. Dry mash (one of Tom Newman's formulas) is in front of the birds all day, and a small scratch feed night and morning keeps the stock exercising. At mid-day the birds are given the choice of a wet mash, and this undoubtedly helps the pens, which have been reared on wet feeding. Unfortunately for some of the competitors, the birds that were laying on arrival are moulting, which seriously handicaps them in a test of only five months' duration. But every care in the feeding and management will result in a quick recovery, and some of these rested birds may yet run the now steady producer hard. Maize is a popular grain feed, not only with the test birds, but on the farm generally. The Manager testified to the quick response made by the sluggish layers after a few days' extra maize feeding. Looking through the records, I observed that a certain pen of Black Leghorns were making a good lead, and this particular group of Blacks I was struck with because of their excellent type and condition. On the whole the competitors are to be congratulated on the type and health of their entries, and also in having the test run under such fortunate conditions.

The list of cups and prizes are given below, and we shall be very interested to know later the news of the winners.

The records are being tabulated on the Bentley principle.

The object of this Test is not only to stimulate the interest of the St. Dunstaners, but will, we hope, convince the public of their ability to breed and maintain poultry of high value.

Is there any need for me to depict the odds in their case, in their struggle to become successful poultry farmers? These men are the owners of pure-bred poultry, and are maintaining a very high standard of efficiency in their yards. They are assisted by expert advisers, and all have the benefit of Mr. Thomson Brown's knowledge, which, I am sure, is ever at their disposal. In their far-away villages, with their new work, and facing the future in the same way as they faced the enemy in the War, we can appreciate the purpose of this Test, and help them by our practical sympathy.

LIGHT BREEDS.

Pen No.	Owner.	Breed.	Eggs laid 3rd prd. Grades. 1st	2nd	Total	Total eggs to date.	Test value.
9.	Mr. C. Bulman	W.L.	57	4	61	197	197
15.	Mr. N. Ramsden	W.L.	54	11	65	176	176
13.	A. Pink	W.L.	45	7	52	172	172
14.	A. Coulson	W.L.	43	17	60	171	171
7.	W. Burgin	W.L.	44	20	64	180	160
5.	C. McIntosh	W.L.	47	16	63	183	158
4.	J. H. Tindall	W.L.	16	20	36	159	140
12.	M. T. Irvine	W.L.	15	5	20	119	119
18.	W. E. Carlton	B.L.	23	4	27	111	111
6.	T. Hetherington	W.L.	35	15	50	115	107

HEAVY BREEDS.

Pen No.	Owner.	Breed.	1st	2nd	Total	Total eggs to date.	Test value.
35.	J. Fowler	R.I.R.	71	—	71	229	229
42.	F. Crabtree	W.W.	43	16	59	184	184
38.	A. Griffen	W.W.	64	—	64	180	180
43.	T. D. Stamper	W.W.	26	13	39	174	163
30.	C. T. Condon	R.I.R.	50	15	65	160	160
26.	A. E. Trigg	R.I.R.	40	4	44	152	152
28.	F. W. Boorman	R.I.R.	28	27	55	175	148
36.	E. Tebble	R.I.R.	33	29	62	195	138
23.	P. Holmes	R.I.R.	44	5	49	132	132
33.	Mr. McLeod Steel	R.I.R.	35	2	37	120	120

S.P.B.A.

DISCOUNTS.

Mr. C. A. Sydenham Hannaford informs us that he will increase the rate of discount to 10 per cent. on all goods purchased from him by members of the S.P.B.A., through the Association. This does not include wire netting, the prices of which are nett.

Mr. John Irwin, who is offering discount as previously announced, informs us that his correct address is Atlantic Buildings, 28, Waring Street, Belfast.

Messrs. C. and W. Reynolds, Little Paxton, St. Neots, Hunts, also offer discount of 10 per cent. on all orders coming through the S.P.B.A. for Poultry Appliances and Houses.

The S.P.B.A. Register for 1924.

By P. HEDWORTH-FOULKES.

"Of the making of books there is no end" may truly be quoted of Year Books, but while the making must mean much "weariness of the flesh" to the Editor the compensation comes, not by the counting of the number of copies issued, but by the use which is made of the book by its readers.

The S.P.B.A. Register is one of the few Year Books which is to be found in use all the year round, for no poultry-keeper who makes any pretence at being up-to-date would think his library shelves complete without a copy. The Editor's task to acquire such a result is not an easy one, and the Rev. H. Mudie-Draper is to be heartily congratulated that the ninth annual Register in no way falls below the high standard set up for the publications of the S.P.B.A.

The selection of subjects for articles in an annual publication is not one to be undertaken lightly, and in the present issue the Editor has been happy in his choice of writers, in that matters of present-day importance have been treated by writers who not only know their subject but who have been willing to let others share that knowledge. A writer in "Eggs" recently asked the question, "Is it reasonable to expect an expert to give his knowledge to the public at large through the medium of the Press, free, gratis, and for nothing?" and then stated that he thought the poultry industry, as a whole, expects what no one, "not even Mr. Lloyd George, has been known to do—viz., to give something for nothing." This writer, whose nom-de-plume was "Investigator," must be agreeably surprised to find that the Editor of the Register, who is evidently an optimist, has succeeded in obtaining from experts a very great deal of that expert knowledge which is of real value to his readers. Capt. Leeney has dealt with a subject which most readers of poultry papers are anxious to be prepared for as the rearing season advances, and his dissertation on Leg Weakness gives much food for thought.

The two articles of Mr. Newman's, "Breeding for Production" and "From Shell to Maturity," which are republished in the Register by request, are full of such valuable suggestions that all who have read them before will welcome their appearance in permanent form, and so be saved that irritation which is experienced by so many who try to dig out the back numbers of weekly publications only to find that the particular issue containing the article has been lent to a friend or lost altogether.

The "Looker-on" raises some contentious points in his article on "British Commercial Egg Farming—the Essentials of Success." It is difficult to follow the reasoning why a commercial egg farmer must depend **entirely**—the writer's own words—upon the sale of eggs, surplus cockerels and old hens, as eatable commodities only. Especially is this so, as he lays emphasis upon success being dependent upon high flock average. Why not sell hatching eggs as well? Surely the man who buys his stock as eggs or day-old chicks in the hundreds, or (as many do) in the thousands, does not buy pedigree stock, but seeks out the commercial egg farm with a flock average. Example is better than precept, and therefore I may perhaps be allowed to quote our own case, where during the past week we had enquiries for 4,000, 1,600 and 1,000 eggs from three separate farms for delivery in such numbers as could only be obtained from flocks. The statement that 100 birds to the acre should be the limit does not conform to practice on many modern commercial egg farms in this country, while reports of recent investigators into American methods tell us of the growing tendency to increase numbers, even up to 800 and 1,000 birds per acre with satisfactory results. Mr. Lester Spurgeon's article on the same subject of commercial egg production has some valuable hints upon economising labour which will be adopted by many readers.

The value of Scientific research depends upon its proper translation to economic practice, and in Mr. Newman's treatment of "Sex-linked Inheritance" we have an excellent example of what is wanted in this direction. The scientist is so often misunderstood, because he lacks the view-point of the practical man, who likewise must realise that the scientist has to explore in directions which may not have immediate (if any) bearing upon the practical man's work. Sex-linked Inheritance may appear to some people as being a subject which is being over-emphasised in importance, but Mr. Newman has shown that practical results of considerable value can be derived from a close study of the subject. A question which is prominent in the minds of many poultry farmers at the moment is dealt with in a most practical manner by Mr. Dowden, who is practising what he preaches, and who is regarded as the right man to deal with the subject of "Additional Profits from Fattened Culls and Surplus Stock."

We would all endorse Mr. Meekings in his statements that "rearing should be standardised." The bugbear of poultry farming is rearing, whether it is a case of 50, 500 or 5,000 chicks, and any system which will ensure even approximately uniform results season after season will be welcomed. We have only touched the fringe of the subject as yet, but as we now do not hesitate to put 10,000 eggs into a single incubator, surely we may soon hope to have our rearing plant standardised to deal with the products of this number of eggs.

The Editor has not overlooked the importance of Ducks, and the articles by Miss Barbara Raye, Mr. Harold Paine, and Capt. Heseltine contain a fund of information, which even the experienced "ducker" will read, mark, learn, and inwardly digest."

Of the other articles, Mr. Birkhead, the able Secretary of the B.B.L.C., makes out a strong case for the Black Leghorn, and the next writer of a book on Breeds of Poultry would do well to make copious extracts in describing this breed. Mr. Alfred Brown's suggestion for Duplicate Book-keeping is a condensed article upon a subject which is of importance to everyone, but neglected by most.

The last article, by Mr. Wait, is upon a topic of much interest to the practical mind and the formula for the making of a fireproof paint will be much appreciated by those—and these must be many—who have experienced loss by fire during their rearing season.

The portion of the book devoted to the "Register of Members' Breeding Pens" shows no diminution, and it will be interesting to note the extensions brought about by the new scheme for Inspection and Registration of Farms, which the Council have put forward, and which is to be put into operation immediately.

The List of Members, like the pages of advertisements, shows that the poultry world does appreciate the work of the S.P.B.A., for both are extending, and both find in the Register a place where they are easy of reference at all times of the year.

INSPECTION AND REGISTRATION OF FARMS.

IMPORTANT.

The notice referring to the above which appeared in our issue of January 2nd has resulted in many applications for inspection being received.

Apparently many of our members are under the impression that no charge is to be made for this Inspection and Registration. Obviously that is impossible, as the Council of the S.P.B.A. will have to pay to the Ministry a fee to defray the cost of each inspection, and there will be other expenses incurred by the Council. To cover this, the Council have decided that the fee payable for such Inspection, Registration, and the grant of a Certificate, shall be fixed at three guineas (£3 3s.). The inspection will be an annual one, and at present the scheme is limited to England and Wales.

Below are the Draft Regulations concerning inspections by officers of the Ministry of Agriculture. These are the principal details of the scheme. A few minor details have to be settled. I am communicating with all those who have made application for inspection, with a view to finding whether, in view of this later knowledge, they still wish the inspection to be made. It should be clearly understood that the inspection is limited to Pedigree Breeding Farms and not, at present, to Commercial Egg Farms, or farms where there is no trap-nesting.

All reports will be treated as confidential, and if for any reason a farm is not approved by the inspectors no publication of that fact will be made.

It must be realised that this is but the first step in a scheme which may mean great developments in the future. Therefore, the Council of the S.P.B.A. request that members will give it all the support in their power.

At present it must be regarded as largely experimental, and success depends in a great measure on the co-operation of our members.

A list of approved farms will be published in "Eggs," and a special Register will be kept. A list will also be supplied to the Ministry for their information :—

(1) The Ministry of Agriculture is prepared to carry out, at the request of the Scientific Poultry Breeders' Association, for an experimental period of one year, commencing 1st January, 1924, inspections of the plant, stock and methods of poultry management of members of the association resident in England and Wales, who wish their names to appear in the Association's Register of Approved Breeders.

(2) Responsibility for granting or withholding certificates of registration will rest with the association, who will conduct all correspondence and clerical work arising in connection with the scheme, including the fixing and collection of fees from breeders, etc. No name shall be added to the Register except on recommendation of the Ministry's Inspector. The responsibility of the Ministry will be confined to the work of inspection and incidental duties relating thereto.

(3) The Association will pay to the Ministry a fee to defray the cost of each inspection, the amount of the fee being fixed at such a sum as will ensure that no part of the cost will fall on public funds.

(4) All reports by the Ministry or its inspectors would be "confidential," and would be supplied for the sole purpose of enabling the Council of the Association to decide whether or not to grant certificates of registration. No such report should be published or communicated either to the breeder concerned or to any other person. No list of breeders who have failed to pass the test of inspection should be published.

(5) The inspector's reports would deal with the following points :—

(a) Whether the general health of the stock is satisfactory, so that hatchable eggs and vigorous and healthy chicks are likely to be produced.

(b) Whether the stock is typical to the breed.

(c) Whether an efficient method of trap-nesting and recording is carried out, and in particular—

(1) Whether a sufficiency of trap-nests are provided ; (2) the monthly record sheets with the preceding tables carried forward, and the previous monthly record, are available for inspection.

(N.B.—Trap-nesting may be carried out either for the four winter months or for the full year.)

(d) Whether house and run are well designed and of adequate size.

(e) Whether the general management is of a high standard.

Some Fruit Growing Notes to Help Poultry Keepers.

By F. W. WHEELER, F.R.H.S.

Now for some special notes on PRUNING—a few popular varieties—for I said last time that the peculiar habits of some kinds would require special treatment ; and in reading, or acting on, these remarks it must always be remembered that soil which is light or heavy, warm or cold, will give variations in results of growth, and consequently the importance of close observation, and then working accordingly, instead of following some hard and fast instruction is obvious.

Let me start off with a well-known apple, BRAMLEY'S SEEDLINGS, a culinary variety now grown on a large scale because it also succeeds on damp and heavy soil, and is generally vigorous in growth.

This variety does best if the tipping of the leaders is almost entirely discontinued after four or five years; allowing that it is making a good balanced tree.

Laterals are sturdy, and if not overcrowding the tree they can be left to bear fruits on longer darts than as with weaker varieties ; extra strong laterals can be cut clean out, and it will be noticed that the main branches will generally furnish themselves with spurs.

NEWTON WONDER, a good dual apple, as besides being a good cooker if kept until February, it is a very nice dessert one. The tipping of leaders can be continued rather longer than with Bramley's. Young trees come into bearing quickly. On the whole it is an easy variety to prune, and the shoots do not want to run off in every direction.

A point to note with this variety is the tendency to have several twiggy growths quite close to the leader, and these are best cut right out, instead of spurring, or you would only get another little forest.

Another fairly vigorous grower is ALLINGTON PIPPIN, and when planting more dessert I shall give it preference to James Grieve. The good flavour, together with its bloom and peach-like appearance, make it an A1 marketable apple to have. It has also a grand and distinct flavour of its own when cooked.

There are several little points worth noting when pruning Allingtons, and it seems a puzzler at times. One finds tipping necessary to stiffen branches so as to carry fruit and to counteract its spreading habit by cutting leader to top eye instead of an outside one; also tipping will help to keep up the size of the fruit. On the other hand, tipping has a tendency to encourage an excess of lateral growths, so we must strike a compromise somewhere, and this seems best done by tipping for the first six or seven years then ceasing ; but as the crops of fruit come along they will naturally check excessive wood growths, so at this stage a reasonable shortening can again be done and continued according to how these act on one another. Spurring to four or five eyes, instead of three will also help in checking the over-free wood growth.

Having mentioned JAMES GRIEVE, suppose I take it next. Its fine flavour has made it popular, but I must say that my experience here and elsewhere has made me feel it is rather over-boomed. Two bad points being its liability to the canker trouble and brown spots in the ripe fruit: there is likewise the need of care in marketing the fruit.

I think it is very important to find out if it suits the soil of the district, but, if so, then certainly have it.

As regards pruning, good open centres and summer pruning will help in colouring the fruit, tipping lightly and spur to four or five eyes.

While talking of good flavour there is no doubt that COX'S ORANGE PIPPIN is still the best. It is not a strong grower, and there is not much fear of pruning leaders too hard and so causing any excess of wood growths; the best results seem to come from cutting back half the leaders each year as near as one can to a suitable eye.

It bears well on spurs, but this variety in particular must not be short-spurred (to one eye) as, if so treated, the one left will generally die out. So leave three, as then it frequently produces fruit buds in one year.

WORCESTER PEARMAIN is another deservedly favourite dessert apple, particularly for those that like a hard juicy one, but unfortunately it is so often put on sale before ripe. As an upright grower it does not occupy so much space, and for the poultry-keeper's runs it is a variety that will not encourage the birds to fly up into the branches to roost. As regarding pruning, it is like the GLADSTONE, in that it bears fruit chiefly on the points of side shoots; so these darts must not be cut back, unless they are too long or whippy to carry the fruit.

Thinning and regulating shoots will be necessary, but otherwise light pruning. Untipped trees, at the East Malling Experimental Fruit Farm, showed that if so treated they did not then furnish their branches well with spurs or laterals; so light tipping is advisable. Three-bud spurring also seemed best where it had to be done, and the good results were more noticeable after the early years of the tree were passed.

GLADSTONE is the earliest eating apple (August); although soft (a favourite of mine), it sells well in a seaside holiday resort. Often considered a bad cropper, but that is chiefly because badly pruned (being a tip, or dart, bearing variety). Somewhat spreading in habit and irregular in growth it requires, when young, a little extra attention in selecting the eye to cut back to in order to shape it symmetrically. Light tipping seems the best plan to help a natural furnishing of spurs on the main branches, and in its early years cut out all but the weakest laterals.

To return to kitchen apples—EARLY VICTORIA (July-August), of the Codlin family is usually a prolific bearer. In brief, prune and tip lightly after the tree is shaped reducing severity gradually.

Fruit eyes will often develop in one year on the spurs, and when this variety shows the habit of biennial bearing it can be partly rectified by returning to a little extra tipping. I notice my trees make natural fruit spurs freely. Here, again, in dealing with these, work on the three-bud spurring.

This article must not be drawn out too much, but I feel I cannot close without a word about that splendid apple, LANE'S PRINCE ALBERT. It is perhaps the most puzzling to prune, partly because of the irregular and spreading growth and branches which seem to want to cross each other in every direction; likewise its drooping habit, or downward growth requiring a continual pruning to top eyes to encourage as much as possible upward growth. Its heavy cropping propensity naturally tends to bear down the branches you want to get upright. On the whole the tipping must be moderate. One can start by reducing leaders two-thirds in length, and in successive years gradually reduce the lengths to be cut away. Spurring likely to give best results will be four to five years.

I think after all I have written to-day that you will agree with me respecting a remark I recently made, that apple-growing and pruning will provide a fascinating study. In my next article I must speak about WINTER WASHING.

THE WORLD'S POULTRY CONGRESS.

BARCELONA AND MADRID.
May 10-16, 1924.

THE BREEDERS' OPPORTUNITY.

Programmes are now available for this important gathering of the world's poultry-keepers, and there is sufficient evidence forthcoming to indicate that the Congress not only will be of great interest to all who attend it, but also that it will be a unique opportunity for British breeders to secure fresh markets abroad.

The British committee for the Congress are now open to receive tenders from British poultry-keepers for the privilege of representing Great Britain with a trio of any recognised breed of poultry or ducks and a pair of turkeys or geese.

In such breeds of poultry and ducks as a difference occurs tenders are invited for one pen of **standard-bred birds** and another of **pedigree layers and table.** Only one pen of any breed or variety can be exhibited in either section, and the exhibitor thus secures the sole right of display in his particular section.

The British Congress Committee propose to establish a packing centre near London, under the supervision of Mr. Clem Watson, who has again undertaken the charge of the stock, and to this depot the exhibits will be sent in ordinary exhibition hampers. Here they will be packed in substantial travelling crates for the journey to Spain, and fed and watered en route so as to ensure their arrival in as good a condition as possible in Barcelona. The British Congress Committee will bear the expense of dispatch and return of the exhibits, travelling crates and attendants, and the entry fees for exhibits at Barcelona.

All this, it is obvious, entails a very heavy outlay for the British Committee, who have no Government backing (except for a grant of £50), and they can only meet it by substantial tenders from breeders for the right to represent their country in the exhibition.

It is of the utmost importance that Great Britain should figure strongly at Barcelona, for delegates are coming to the Congress from all over the world, and South America will be especially well represented by prospective buyers. Moreover, in Spain itself, if British breeders but put up as good a show as they did at The Hague in 1921, there is every promise of a capital market for high-class stock.

The Official Handbook on British Poultry is being prepared by Mr. S. H. Lewer, President of the British Committee, and in it the names and addresses of all the breeders representing Great Britain will be included, and thus constitute an advertisement of great and permanent value. Of Mr. Lewer's Handbook to The Hague Congress 5,000 copies were rapidly sold, and a world-wide advertisement was thus secured by the exhibitors mentioned therein.

Tender forms for poultry exhibits can be obtained from The Secretary, World's Poultry Congress (British Section), 3, Vincent Square, Westminster, S.W.1, and all tenders must be lodged by February 1st at latest.

TRADE DISPLAY.

A bay in the exhibition section at Barcelona has been taken for the purpose of a display of British exhibits of poultry appliances and foods, the rent for space in which is—

£1	per running foot	4	ft. deep.
£1 10s.	,,	,, 5	,,
£2	,,	,, 8	,,

Plans are now ready at 3, Vincent Square, Westminster, and in the case of houses and large appliances models will probably be appropriate. Where traders cannot attend personally arrangements can be made for setting out exhibits and answering inquiries.

Thirty-one countries will be represented.

THE SOCIAL SIDE.

Apart from the educational interest of the exhibition itself, with its varied display of birds, appliances, instructive papers and scientific exhibits from so many nations, the Congress offers an opportunity of seeing one of the most interesting of European countries cheaply and under exceptionally good conditions as a British delegate to the Congress.

Special terms have been quoted for the round trip, going via London, Newhaven, Dieppe, Paris, Port-Bou, Barcelona, returning via Madrid, Burgos, Biarritz, Paris, Dieppe to London for—first class £12 18s. 9d., second class £9 5s. 2d. (sleeping berths extra, and also the cost of transfer from station to station in Paris). The journey to Barcelona and on to Madrid must be taken as a party of not less than twenty-five, but the return can be made at will, and the journey broken to see places of interest en route. Tickets must be taken through the Congress secretaries.

Hotel expenses in Barcelona and Madrid may be reckoned as in England at, roundly, £1 per day, and the programme arranged by the reception committees in these two cities promises a delightful experience.

Tickets for the Congress cost 10s. each, and entitle the holders to the full benefit of Official Members and a copy, when issued, of the Transactions of the Congress, in itself an adequate return for their registration fee. They can be obtained from the hon. secretaries, Mr. T. R. Robinson and Mrs. Rawson, 3, Vincent Square, Westminster, S.W.1. Application for these tickets should be made early, and, if desired, the hon. secretaries are prepared to see to passports, visas, etc.

Correspondence.

THE SUSSEX CLUB.

To the Editor of "Eggs."

Dear Sir,—I had unfortunately to leave the meeting of the Sussex Club at Olympia before it closed, so had no opportunity to thank all those members of the Club who were good enough to give me their votes in the election to the Secretaryship. May I, through your courtesy, do this now, and also ask the indulgence of the Club members until I get hold of all the ropes which Mr. S. C. Sharpe has handled so very well for so long.

May I perhaps be permitted to say this. I have no personal axe to grind in the poultry world at all, but for a long time have had a good deal of experience on the teaching side, and also of the economic problems that confront poultry-keepers as well, and I hope, amongst all the schemes for the good of the fancy and the industry with which I have to do, that I may find many opportunities to be of service not only to the Sussex Club, which has, thanks to the foundation already laid, a splendid outlook, but also to poultry-keepers generally.

I do hope, indeed I feel quite sure, that poultry-keepers will soon realise that there is only one type of Sussex, and that so long as breeders will loyally support that standard, there is a very bright future for the breed, and I do ask breeders who have no interest in exhibiting to support the Club in the interests of the breed itself.

I need not say how pleased I shall be to receive the names of any who wish to become members, and I should like to take this opportunity to assure them that I shall do all in my power to promote their interests.

I am, yours very faithfully,
HAROLD MAYALL.

3, Vincent Square,
Westminster, S.W.1.
January 7th, 1924.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package. and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

Answers to Queries unavoidably held over.

POST-MORTEMS.

H. Post-mortem examination of three chicks eight days old. Infectious pneumonia, not B.W.D. as suspected. They were infected at the earliest possible moment, I should judge, by the arrest of absorption and condensation of the yolk sac. No treatment is of any avail, but we have much correspondence which seems to prove that the spread of the malady has been prevented by fortifying the chicks with iron and quinine at the rate of forty grains of the citrate to each gallon of drinking water. As to "how they acquired it," one cannot say, as there are so many ways. Another enquirer, who was quite confident of his disinfection in a previous season, sends a letter this morning which is worth publishing as an example of how easily one may overlook a means of carrying infection. It runs as follows:—"Last summer, before I knew my chicks were suffering from the same infectious illness, hay was mown in the two chick runs which had infection. This hay was put in the loft, and other hay from vacant and uninfected runs put on top of it. It is my custom to line the box in which I carry the newly hatched chicks from the incubators to the brooder houses with hay, and as the lump has been considerably reduced lately I believe it is possible that with the last hatch I put some hay from infected runs in the box, whereas with other recent hatches I have got hay from the vacant and uninfected runs. So far these have done well. This possible cause only dawned on me to-day, and I trust sincerely it is the correct solution of the trouble."

Comment on this is needless, except to say that disease germs which are saprophytic and live on plants or in soil, and lurk in readiness for suitable hosts, are not got rid of by making a wet mess with disinfectants in the houses. The suggestion to some poultrymen that their operations have not been thorough in disinfecting is quite wounding, but the perusal of the above quotation should help us to trace some of the errors of omission that we fall into.

"G. S." Pulmonary apoplexy. "Gasping for breath" was quite consistent with a lung flooded with blood. She was much too fat inside, and was maturing yolks at a great rate as well. A whole day of fasting, and a few 20-grain doses of salts in morning feed should reduce tension without appreciable reduction of eggs.

"E. E. C." This pullet had an old-standing abscess extending all along one side. She was very thin, and succumbed to self-poisoning by absorption.

A. S. She had acutely inflamed mesentery, and peritonitis had begun. The uterus was greatly dilated, and its walls very thin. She simply couldn't stand being woke up in the middle of her night and indulging in a big feed. The system seems to me too utterly artificial. You may pump eggs out of birds the first season or two, but a respectable old hen of "three or four years" with conservative habits could not be expected to fall in with the new regime.

P. G. E. The specimen received is an aborted egg. If you will look at either of the first four coloured illustrations of "The Development of the Chick," issued with "Eggs" last year, you will see that the chalazae twist failed in varying degrees at the two ends, and a plain string resulted in one, and a tangle at the other. A fowl laying such an egg should be put aside and fed low, while the organs are resting, but given lime water or other shell-making material, so that the various glands which have got out of rhythm may slowly resume normal and synchronous function. Whether this physiological view of the case is commercially consistent is for you to decide. It may be better to put her in the fattening pen if of no great value.

D. and S. The Rhode Island pullet was the victim of apoplexy. She had a small heart, loaded with fat; and that upon the abdomen was more than an inch deep. The deaths of those referred to may well have occurred from the same cause. You feeding is evidently too fattening, and to this you have added the inducement to eat more, by providing artificial light. Is it not forcing the pace, and should we not expect fatalities?

"L." Post-mortem examination of the cockerel revealed a ruptured heart. It was very much dilated, and the walls thinned, and any exertion or excitement would lead to their giving way. There is no reason to suspect poison.

"F. W. C." This Leghorn pullet undoubtedly bled to death from a self-inflicted wound by one of her own sharp nails when "scratching violently," as you describe it, and have seen others do the same. The parasites found are bugs, and not such as belong to the species affected. All the organs were healthy, and she had a matured egg ready for laying. An insecticide should be used and the nest boxes cleaned out, and a layer of equal parts sulphur and lime used before putting down fresh stuff. This is a curious case, of which I have not seen the like before. The toleration that fowls show for their own parasites does not seem to extend to those of other species. Horses have been known in a single night to rub themselves raw when attacked with poultry mites.

Jehu. Internal bleeding was the cause of death The liver had undergone fatty degeneration and simply broke up.

O'B. Post-mortem examination of chicken. I cannot reconcile your account of the happenings with the post-mortem findings at all. All three had acute congestion of the lungs, such as one associates with inhaling the fumes of imperfect combustion, or of crowding under a hover. This does not rule out the possibility of a poison that led to heart failure, and congestion of the lungs as the result. Analyses are best confided to the official County Analyst, as his certificate carries more weight than that of any private practitioner. You would find the Department of Agriculture, Dublin, afford you assistance in examining the suspected food, and perhaps deem the matter of sufficient public inportance to conduct an analysis in their own laboratory.

H. asks "if it is possible for infectious pneumonia to be inherited from stock?" Probably not.

Should the "burning of sulphur candles in properly closed house" ensure the death of all disease organisms? There are many ways in which the germs can survive. Some day I hope to publish notes on them, but, like all others with practical experience, I almost despair of such a thing as perfect disinfection on the farm and in the poultry yard. Even in the marble halls and with sprays and every possible appliance of the modern operating theatre, perfect sterilisation cannot be ensured, and patients succumb to the invasion of septic germs. How then can we expect destruction of all disease germs under the conditions in which animals and birds are kept?

"Could the germs be under floor and joists?" Certainly. "Can it be carried by humans (infection) from an infected brood to others, and, if so, what precautions should be taken?"

Yes, there can be little doubt of men being carriers on their clothing and boots, and on other things. Where possible the person who attends to an infected flock should not look after any other. Immersion of boots in disinfectant and the wearing of overalls recommended, as in foot-and-mouth disease.

This correspondent finishes up by saying he "is NOT enclosing a fee for a reply by post for the information he is asking, because it is extremely necessary, since several hundred chicks depend on, in fact, the whole season."

In my ignorance I should have thought that where so much was at stake, that a trifling fee would have been risked. The gentleman adds a postscript wiith one more question of "How many days after infection does the disease show itself?" This remains to be learned, but I THINK four or five days of incubation, although they fail and often die in as many hours.

The next letter which my secretary wants instructions upon is from the Central Council of Milk Recording Societies, asking me for an article of about 3,000 words on "First Aid in the Treatment of Farm Stock," with the notification that "as the work will be issued free of charge no remuneration can be made for articles."

Next please! An application for Poor and District Rates, £40 0s. 4d. Vouchers handed to Editor.

E. E.—I should fear from your description that it is the disease known as vent gleet, which is an infectious and often intractable malady. You have not observed the rules which are published every week, and must be complied with, or we become entangled in an impossible amount of correspondence. The symptoms and treatment of this trouble received some attention in quite recent articles in "Eggs," to which you are now referred.

"B." The hen was affected with chicken pox or epiphelioma contagiosum or cutaneous psorospermosis, as it is variously called. Your treatment is not sufficiently heroic. The wart-like growths should be cut out, and the surface scraped and a caustic such as nitrate of silver applied, or copper sulphate. The detrita should be collected and burned. The disease is only formidable when neglected or occuring among the young, and it is important to promptly isolate suspects. (2) A small whitish ulcer on the inside of the cockerel's mouth is very suspicious of a small avian diphtheritic deposit which has been torn off and left a cup-like depression. This also needs the cautery. Both maladies are infectious, and all precautions should be adopted. In a recent article an endeavour was made to explain that the diphtheritic deposit may come in any portion of the mouth, and be capable of easy removal and cure; but when it occurs in the larynx it cannot be viewed (except by a method of manipulation which could not be described here), and it soon completely fills the lumen, and the bird dies from suffocation, although apparently not ill a day before. Having regard to its infectiousness, it is often better to kill and burn and disinfect; but where a number are concerned, and isolation and prompt treatment can be afforded, the ultimate loss will be less.

H. LEENEY.

APPLICANTS FOR MEMBERSHIP.

Southall, G. H., Hazeldene, Horeham Road, Sussex.
Russell, L. G., Upper Maudlin, Steyning, Sussex.
McIntosh, Wm., Castlandhill, Inverkeithing, Fifeshire, N.B.
Williams, J., Wyke Down Farm, Picket Piece, Andover.
Crosse, A. M., 30, Haywards Road, Haywards Heath.
La Trobe, F. H., Brockton Poultry Farm, Charing Heath, Kent.
Mutton, W., Polgear House, Four Lanes, Redruth.
Healthlands Poultry Farm (F. D. Barnes), Ottery St. Mary, Devon.
Ferrett, Jas. G., Leghorn P.F., Spinktown, Somerton, Somerset.
Price, H. F., 20, College Street, Wellingborough, Northants.
Lawry, Wm. J., "Bisson Poultry Farm," Penryn, Cornwall.
Owen, Miss M. I., The Logs, East Heath Road, Hampstead, London, N.3.
Bulloch, C. H., Kensington Lodge, Blenheim Palace, Woodstock, Oxon.
Bray, R., Temples Croft, Upton, Aylesbury, Bucks.
Bowan, W. T., "The Wash Farm," Furneaux Pelham, Nr. Buntingford, Herts.
Porter, D. F., 141, Wright Avenue, Toronto, Canada.
Bodsworth, E. G., Rose Hedge, Wavendon, Bletchley, Bucks.
Moore, Mrs. S. M., Leaping Well, Felbridge, East Grinstead.
Wilson, A. A., Hillside, Halland, Sussex.
Cubitt, C. R., "Eureka," Barton Turf, Norwich.
Taylor, Jas. W., White Lion Hotel, Heptonstall, Hebden Bridge.
Clague, Capt. W., "Bordersted," Belle Vue, Carlisle.
Wildman, H., The Bungalow, off Chorley Road, Heath Charnock, Nr. Chorley, Lancs.
Case, W. Bryan, Binham, Wighton, Norfolk.
Parish, Miss C., "Avona," Bramhall, Cheshire.
Palmer, C., The Abbey P.F., Winchcombe, Glos.
Phillips, C., Plonghleys Farm, Slough.
Tatham, T. P. H., Fruit Grovers, Stibbard, Guist S.O., Norfolk.
Sleigh, G. Reid, Kirksyde, Tarves, Aberdeenshire.
Allsop, A. T., Kirby Hall Gardens, Ouseburn, York.
Langridge, Neville, Framingham Pigot, Norwich.
Ewin, A. J., Langton House, Appleby, Westmorland.
Cowan, S. W. P., Rosbyn, Heathfield, Sussex.
Gross, A., Holmdale, Church Road, Thundersley, Essex.
Brown, Thos., Ann Lane, Astley, Nr. Manchester.
Hissey, R. J., Trewern, Cusop, Hay, Via Hereford.
Zamba, Capt. N., West Tisted Manor, Ropley, Hants.
Cowgill, Wm., Dundee P.F., Stone Chair, Shelf, Nr. Halifax.
Johnasson, Miss G. V., Fairview, Nailsworth, Glos.
Shelton, F. L., Church Mead P.F., Pirbright, Surrey.
Lucy, V., Langley Lodge, Sutton Valence, Maidstone.
Newth, W. H., 360, Manchester Road, Droylsden, Manchester.
Greenwood, Miss A., Ivy Cottage, Boston Spa, Yorkshire.
Mountford, T. G., "Crowmere P.F.," Shrewsbury.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, JANUARY 11th, 1924.

GRAIN AND FEEDING STUFFS.—The market for home-grown cereals is very firm, and prices are higher. Wheat, at an average of 10s. per cwt., has advanced by 3d. per cwt. on an improved demand and limited offerings, and barley of good malting and feeding descriptions is in very short supply, the average prices being 11s. 3d. per cwt. for malting and 9s. 4d. per cwt. for feeding, or 8d. and 5d. per cwt. respectively above last week's averages. Oats are only a moderate trade, but supplies are not over-plentiful and quotations are easily maintained. Imported cereals are also a very firm trade, and prices generally are higher. Milling offals are in steady request, and middlings are dearer. Meals are meeting with more enquiry, and the recent advances in the prices of maize and barley are responsible for higher quotations for the meals derived from these cereals, barley meal averaging £10 12s. per ton against £10 a week ago.

MILLERS' OFFALS.—Bran (British): Bristol, £8 7s.; Hull, £7 7s.; Liverpool, £7 10s.; London, £7 10s. Broad Bran: Bristol, £9 15s.; Hull, £8 17s.; London, £8 7s. Fine Middlings (Imported): London, £10 5s. Coarse Middlings (British): Bristol, £9 2s.; Hull, £8 15s.: Liverpool, £8; London, £9. Pollards (Imported): Bristol, £8; Liverpool, £7; London, £7 15s. Rice Bran: Bristol, £7 15s.; Liverpool, £7 5s. MEAL.—Barley Meal: Bristol, £10 15s.; Hull, £10 6s.; London, £10 15s. Maize Meal: Bristol, £11; Hull, £10 13s.; Liverpool, £10; London, £11. Maize Meal (S. African): Liverpool, £9 7s. Maize Germ Meal: Bristol, £10 5s.; Hull, £10; London, £9 15s. Maize Gluten Feed: Bristol, £10 15s.; London, £8 17s.

EGGS AND DEAD POULTRY.

English eggs are in good supply for the time of year, and prices are reduced. Good quantities of imported are on offer and are cheaper. The trade for poultry has again resumed its normal course after the holiday fluctuations, and, on the whole, quotations are rather higher than last week.

Week-end prices—Eggs (per 120): British, 30s., 25s.; Irish, 29s., 24s.; Danish, 33s., 30s.; Dutch, 31s., 29s.; Australian, 24s., 23s.; Egyptian, 13s., 12s. 6d.

Dead Poultry (per lb.): Fowls—Surrey, 1s. 8d., 1s. 6d.; Irish, 1s. 6d., 1s. 2d.; Others, 1s. 4d., 1s. Ducks, 1s. 6d., 1s. 4d. Geese, 1s. 2d., 1s. Turkeys, 1s. 6d., 1s. 3d.

EGGS (per dozen).

Ashford: First, 2s. 5d.; Second, 2s. 3d. Birmingham: First, 2s. 6d.; Second, 2s. 4¾d. Carlisle: First, 2s. 9d. Chelmsford: First, 2s. 9d.; Second, 2s. 7¼d. Denbigh: First, 2s. 3d.; Second, 2s. 2d. Derby: First, 2s. 6d. Dorchester: First, 2s. 4d. Exeter: First, 2s. 6d. Guildford: First, 2s. 2d.; Second, 2s. 9d. Hereford: First, 2s. 0d. Hull: First, 2s. 8d. Ipswich: First, 2s. 9d. King's Lynn: First, 2s. 6d.; Second, 2s. 3d. Lincoln: First, 2s. 6d. Llandilo: First, 2s. 0d. Montgomery: First, 2s. 6d. Newport (Mon.): First, 2s. 6d.; Second, 2s. 4d. Norwich: First, 2s. 6d. Oswestry: First, 2s. 6d.; Second, 2s. 4d. Penzance: First, 2s. 1d.; Second, 2s. 0d. Salisbury: First, 2s. 4d.; Second, 2s. 2½d. Shrewsbury: First, 2s. 6d.; Second, 2s. 4d. Truro: First, 2s. 1d. York: First, 2s. 6d.; Second, 2s. 4d.

FOWLS.

Per lb.—Birmingham: First, 1s. 3d.; Second, 9d. Derby: First, *5s. 3d.; Second, *3s. 0d. Exeter: First, 1s. 8d.; Second, 1s. 6d. Hereford: First, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Llandilo; First, 1s. 7d.; Second, 1s. 5d. Newport (Mon.): First, 1s. 5d.; Second, 1s. 2d. Shrewsbury: First, 1s. 6d.; Second, 1s. 3d. Truro: First, 1s. 2d. York: First, *5s. 3d.; Second, *4s. 0d.

DUCKS.

Per lb.—Birmingham: First, 1s. 2d.; Second, 1s. 0d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 6d.; Second, 1s. 3d. Hereford: First, 1s. 3d. Llandilo: First, 1s. 7d.; Second, 1s. 5d. Newport (Mon.): First, 1s. 3d. Shrewsbury: First, 1s. 6d. York: First, *6s. 0d.; Second, *5s. 0d.

* Per Head.

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1d. per word—minimum charge, **1s. 0d.** Box numbers, **1s. 0d.** extra per insertion. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS, per line, extra 9d.

DAY-OLD CHICKS " " 1s.

DAY-OLD CHICKS " 1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

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6 " " " 4
9 " " " 6
13 " " " 8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S E.16, to be counted as eight words.

Advertisements must reach this office FIRST POST FRIDAYS for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, **£8 15s. 6d.**; Half Page, **£4 7s. 9d.**; Quarter Page, **£2 5s. 0d.**; One Column, **£2 18s. 6d.**; Half Column, **£1 9s. 3d.**; Quarter Column, **14s. 6d.** One inch, **6s. 6d.** Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

To avoid delay Advertisements should be addressed to the ADVERTISEMENT MANAGER, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16., by first post FRIDAY MORNINGS, for insertion in following issue. Advertisements received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

PULLETS.

FOR SALE.

Rhode Island Reds.—Major Robert Lethbridge, Broomhill, Tiverton, whose stock has done well in recent laying trials and utility shows, offers Pedigree January, February, March, 1923. Utility Pullets, laying, from trap-nested hens; records 200 to 285, by 284, 291, 302 egg males; from 10s. to 25s. each. Particulars on request. Only one breed kept.

Early hatched 1923, January and February; Light Sussex (Lister-Crawshay), Rhode Island Reds (Golden-Measure's). All healthy pullets, through the moult, and just commencing to lay again. Room wanted. Price 8s. and 10s. each. Catalogue on application.—Gordon R. Smith, S.P.B.A., N.U.P.S., Derwent House, Drigg, Holmrook, Cumberland.

White Leghorn Pullets, April, 1923, Cam-Barron, 11s. 6d. each; six, 65s.; 70, £35. Also Ten White Leghorn 1922 Hens, 10s. each.—Leake, Llanyre, Llandrindod Wells.

R.I. Red, Anconas, W. Leghorns; 12s. 6d.-21s. each; related Gold Medal Pens. — Berney, W. Common, Harpenden.

ERNEST ORR,

Brooklands, Redhill, Surrey. White Leghorns and R.I. Reds. Egg production and breed type. Pullets from flock awarded 1st and gold medal for best utility light breed at Crystal Palace, 1923. 1922 Hens, 8s.; Pullets, 10s. 6d.; Eggs, 7s. 6d. D.O.C. All by L2 stock. Inspection invited.

1923 PULLETS, 1923.

For immediate disposal, White Leghorns (Snowden's), February hatched; Light Light Sussex (Franklyn's), April hatched, Rhode Islands (Golden's), April hatched, White Wyandottes (Cam-Barron strain), April hatched. All laying, or on point. Full-grown Pullets from selected stock. Guaranteed healthy. 8s. 6d. each, £5 per dozen; £20, fifty. All carriage paid. Satisfaction, or cash returned.—G. W. Bell, "Lord of the Manor," St. Lawrence, Thanet.

Put your old pots and pans on to the dust-heap.

THESE are all **unnecessary**. The Mash in the Ful-O-Pep Way is all **ready** in a bag and only has to be tipped out—a week's supply at a time.

The birds feed themselves.

Write for a copy of the Ful-O-Pep Monthly Guide and Egg Record, sent free and postage paid.

FUL-O-PEP
DRY MASH LAYING GRADE
TRADE MARK

Guaranteed by QUAKER OATS, Ltd., 11, Finsbury Sq., E.C.

PULLETS.

FOR SALE.

1923 Pullets. White Leghorns, White Wyandottes, Rhode Island Reds, and Light Sussex, March and April hatched. All trap-nested, and pedigree supplied; 10s. 6d. and 15s. each, carriage paid.—G. B. Tootall, Thorncliffe Poultry Farm, Barrow-in-Furness.

Black Leghorn Pullets, fifteen April hatched (Allday and Rawson direct); 11s. each; £7 lot. Also eight March hatched; 12s. 6d. each; £4 lot. Carriage paid. — Neville, M.S.P.B.A., 11, Carroun Road, Clapham, S.W.8.

Light Sussex, February hatched Pullets, from Thomson's direct, gold medal competition strain; from 12s. 6d.—Mathison, Esless Hall, Wrexham.

PRIZE-WINNING WHITE LEGHORNS.

1st, New Barnet; 6th, Tottenham; h.c., Yeovil; c, Crystal Palace, etc. Sisters and dams to above for sale. Also few Cockerels from 240-egg hens. — Munro-Spencer, Ropley.

PEDIGREE PULLETS.

White Wyandotte, from L2 hens; high pedigree sire; 10s. each. — Wheatley, S.P.B.A., Barnwood, Gloucester.

COCKS AND COCKERELS.

FOR SALE.

Six Buff and Ten White Orpington Cockerels; Exhibition-Utility strains; 35s.-30s. each; 1s. 6d. reduction on lots of three or more.—Burnham Avenue Poultry Farm, Bognor.

W. Leghorns, dams 235-256; sire, Barron's 258; dam, 275; 30s.—J. Clayton, Naylors Road, Gateacre, Liverpool.

One White Leghorn Cockerel, February hatched, dam's record 261 in 11 months; sire's dam's record 280 30s., carriage paid. Also one Light Sussex Cockerel, February hatched; dam's record 245; 21s., carriage paid.—G. B. Tootall, Thorncliffe Poultry Farm, Barrow-in-Furness.

White Le Bresse Cockerels, early April, Capper's strain; 12s. 6d.—H. W. Lamb, Albrighton, Wolverhampton.

Two 1922 White Wyandotte Cockerels, Cam strain; tested birds from L2 parents. Records 260, 269; 17s. 6d. each.—McDermott, Steel Cross, Tunbridge Wells.

Beautiful pure-bred White Wyandottes; Cock, 1922, 15s.; Cock, January, 1923, 12s. 6d.; Fine Stock Bird, £1 1s. Approval.—J. Howard, Yelverton, Devon.

Cockerels. White Wyandottes (Cam-Snowdon), Rhode Islands (Measures-Golden), White Leghorns (Rolling - Snowden), all grandsons of Gold Medallists direct; 12s. 6d. each, worth double. — Particulars, Hirst, Schoolmaster, Garforth, Leeds.

Black La Bresse. The Countess of Strafford has for sale early hatched 1923 Cockerels; pen brothers to winners of first, fourth and reserve at Olympia. Price from two guineas. — Apply, Mrs. Moore, Manageress, Wrotham Park Farm, Barnet.

OUSE MANOR FARMS, FAMOUS DUAL PURPOSE

R.I. Reds, bronze medal, 1922; bronze medal, 1923, Harper-Adams' Test (Exhibition Section), Cockerels from hens, 269, 262, 256, from 21s. each. White Leghorns. Winner, Silver Medal, Northern Test, 1923, Cockerels from sisters with 289, 280, and 270 records; from 21s. each. Magpie Ducks, breeding trios from recorded ducks, 281, 276, 266, 257; 63s. per pen; approval; carriage paid; discount ex-service. List free, from Parkin, Sharnbrook, Beds.

Wistlers Wood Egg Farm, Woldingham, Surrey.

Proprietor ... ... G. MAYER.

Under the direction of Lester Spurgeon, to whom all communications should be made.

WHITE LEGHORNS.

One thousand five hundred second and third year hens, mated from carefully culled and trap-nested stock, all raised on the farm, which is situated at an altitude of 900 feet, ensuring birds of great stamina.

Six hundred pullets trap-nested the year through. This season's records, 180 to 276 eggs.

Prices :— Hatching Eggs, **£4** per 100, carriage paid; **10/6** per doz., carriage paid, and packing free. Day-old Chicks, **£8** per 100, carriage paid; **21/-** per doz., carriage and packing free. Special quotations for large quantities and for later deliveries.

NITROPHOS Brand of

PURE WHITE FISH MEAL

Is Unsurpassed for Uniformity of Quality and Purity.

Two Grades. No. 1 Fine for Wet or Dry Mash, No. 2 Coarse for Distribution.

WHOLESALE AND RETAIL PRICES ON APPLICATION.

ANALYSIS:

Albuminoids ...	55%	min.
Phosphates of Lime	17%	min.
Oil...	4.5%	max.
Salt	4.0%	max.

The Good Rich Products Co., Ltd., (Dept. M.), 90, Freeman Street, Grimsby.

(MEMBERS OF THE FISH MEAL MANUFACTURERS' ASSOCIATION).

Lt.-Col. H. M. DRAKE, M.S.P.B.A.,

Breeder of High-Grade Utility
WHITE LEGHORNS.
WHITE WYANDOTTES.
RHODE ISLAND REDS.

All Birds Trap-nested

Eggs for Hatching from 6/6 carriage paid.
Day-old Chicks from 13/6 carriage paid.

A Few 1923 Cockerels still available.
Full particulars on application.

Winswood. Crediton, DEVON.

MONEYSLAND for MONEYSWORTH.

R. I. REDS, ANCONAS, EGGS and CHICKS.

Price List on application.

DENYS J. HARMES,
Moneysland P. F., Crawley.

JAMES E. CARSWELL, M.B.E.,
LIPHOOK. HANTS.

BLACK LEGHORNS. — Hens, Adams and Linkie, mated Cockerels from Margerison direct.

R.I.R. (S.c.).—Measures' Wonderful Layers of Large Eggs.

WHITE WYANDOTTES.—1922 Hens, direct from Pains' "Daily Mail" £1,000 winners, mated Cockerels from Rodwell's winners.

List Free on Application. Inspection Invited

WHITE LEGHORNS ONLY.

" PENSFORD PROGRESS."
724 eggs in 3 years.
Sired by a son of "Lady Bountiful II."
687 in three years.

The Pedigree Strain with 10 years' Trapping and Selection behind it.

Illustrated Catalogue free.

The Misses Ransford,
PERSEVERANCE POULTRY FARM,
PENSFORD, BRISTOL.

B. P. LESCHALLAS, M.S.P.B.A.
Charminster House P.F.,
DORCHESTER, DORSET.

Pedigree White Leghorns

Only the Finest Fully Trap-nested Stock kept.

Telephone 132

R. W. THOMPSON, M.S.P.B.A., E.L.C.

PRINTING

for Poultry Breeders, also Egg & Chick Boxes.

Electric Printing Works, KENDAL.

WHITE LEGHORNS

High Class White Leghorn Pedigree

COCKERELS
MARCH, 1923,

Bred from CAM'S "College Queen" stock (Harper - Adams' Gold Medallist) and BARRON'S "Lady Eglantine" stock (World's record 314-egg hen).
Full pedigree on application.

10/6 each. Carriage Paid England Scotland and Wales.

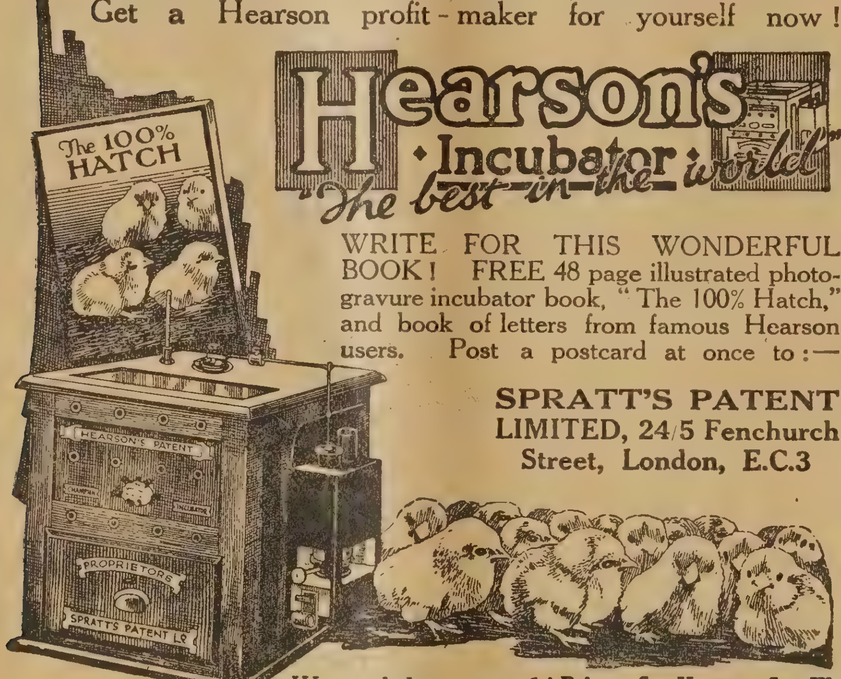
A. S. KETTLE,
" THE OLD HALL " POULTRY FARM,
CLIFTON, RUGBY.

You don't hope—
YOU KNOW

EVERY setting of eggs you hatch is worth pounds to you. When you have a Hearson you don't gamble with this money—your living, perhaps; *you are certain of profit.*

Constant successes prove to you that every fertile egg you put into your Hearson will hatch out a sturdy chick. Hearson chicks are worth money, whether you sell them or rear them as layers.

Your Hearson maintains a hatching record of 90-100% over a long period of years. No other machine can do this because no other machine has the world-famous Hearson Thermostatic Capsule. Get a Hearson profit-maker for yourself now!



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SPRATT'S PATENT LIMITED, 24/5 Fenchurch Street, London, E.C.3

West-end show rooms: **14 Princes St., Hanover Sq., W.**

WHITE ROCK POULTRY FARM.

Are you interested in any of these breeds?

WHITE LEGHORNS.
AYLESBURY.
BUFF ORPINGTON.
LIGHT SUSSEX
W. WYANDOTTES.
S.c. R.I. REDS.
I. WHITE RUNNERS.

Yes! Then write now for my Illustrated Price List.

All Birds of the very best Laying Strains. *Trap-Nests in Daily Use.*

Now Booking Orders for SITTINGS, DAY-OLD CHICKS and DUCKLINGS

R. L. MATHER, White Rock Poultry Farm, WILBY,
M.S.P.B.A., U.D.C. SUFFOLK.

The Rhode Island Red.

A. HAROLD PAINE.

Before I decided to specialise in Rhode Island Reds, I tried out thoroughly five different breeds—three lights and two heavies—each one of which was held in high regard by poultry-keepers generally. The stock I purchased was the best obtainable, and from breeders of repute. Results from the light breeds were, to say the least of it, disappointing. They laid moderately well certainly, but almost throughout all the seasons the eggs were hardly to standard size. One breed which produced most eggs laid them when eggs were cheap. The surplus cockerels were of very little use for table, and were invariably sold at a loss, in some cases not even 1/- per bird could be obtained. One of the heavy breeds laid exceedingly well, but the percentage of under-weight eggs was too high for my liking. The fifth breed, the Rhode Island Red, more than came up to my highest expectations. The birds were hardy, full of stamina, quiet and tractable. They laid large richly-tinted eggs the whole year through, both fertility and hatchability were exceedingly good, and the progeny reared with a minimum of loss. But it was the young cockerels that added considerably to my revenue. They were in great demand, and at 2/6 and over per pound were a very profitable proposition. Undoubtedly the R.I.R., as a dual-purpose bird, is unique amongst all breeds. Here is the proof of what my birds can do. It is a letter from A. J. Bell, Esq.. breeder of pedigree R.I.R.'s, I.R. and K.-C. Ducks, Longwick, near Princes Risborough, Bucks. He writes:—"The following gives the performance of the pen of six R.I.R.'s I had from you last year. Their egg record from 7th November (the day they arrived) up to to-day, 6th November, 1923: From the 7th November, 1922, 72; December, 119; January, 1923, 115; February, 125; March, 141; April, 143; May, 153; June, 138; July, 114; August, 129; September, 111; October, 98; to November 6th, 1923, 8. Total for twelve months: 1,466. Average per bird, 244.3 eggs. All except about half-a-dozen eggs in November, 1922, were over 2 ozs. Fertility was about 95 per cent., the progeny are fine in colour, and from their early performances look like making finer layers."

These figures exceed by many eggs per bird any record obtained by any breed entered in the last Bentley National Laying Test. I have early hatched cockerels closely related to the birds, whose records are given above, at 21/- each, and specially mated pens from five guineas. Sitting (15 N.R.), from 10/- to two guineas, and Day-Olds from one guinea to four guineas per dozen are now available. Day-Olds are being hatched out weekly from now onwards. I find this season as usual, both fertility and hatchability are excellent. All sittings are sent out in special returnable boxes, and live delivery of Day-Olds is guaranteed.

Excellent as are the achievements of my World Record Rhode Island Reds, my Ducks even outdistance them as layers. This year my clients have reported averages up to 299 eggs per bird. A beautifully illustrated list, containing information of much value to breeders, will be sent free on application to A. Harold Paine (Member of the leading Poultry and Duck Clubs), The Chalet, Burgess Hill, Sussex.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association

Wednesday, January 23rd, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

A UTILITY STANDARD.

Mr. F. W. Wait's letter, which appears in this week's issue, deserves the serious attention of our readers. It has been suggested that a meeting shall be called at Manchester, and a committee formed to fix a utility standard for Great Britain. The reason, therefore, being the general dissatisfaction that exists with the judging at utility shows.

Readers will appreciate the dangerous nature of the proposal; surely it would make confusion worse confounded. No standard fixed by a self-constituted body would receive general recognition. As Mr. Wait rightly points out, if such a work is to be undertaken, it should be done by the National Poultry Council, as being representative of the whole industry. All the great utility clubs and the Poultry Club are affiliated to it, and it would be an easy matter to appoint a representative committee—that is, if it is believed to be desirable.

How many score cards and how many systems of judging there are it is not easy to say. During the last three weeks two more score-cards have come to hand, which we have not seen before. One of these is called the "Perfect," but we believe that the authors of many of the others would call this a delusion, and urge their claim that they have the only "perfect" card, and back the claim with arguments which would be most convincing to themselves. One fact stands out prominently, that judges using the score cards of their confreres have asserted that under their own they would not have made the same awards. A County Instructor remarked the other day that no man should be allowed to judge unless he had had three years' trap-nesting experience. That was a very profound remark. There are not a few who, one strongly suspects, owe their position to a dollar invested in Hogan's "Call of the Hen," a fact which they have more or less successfully disguised with a few elaborations or obscurities of their own.

However, this is all common property. The real problem is as to whether it is desirable to fix a utility standard or not, whether it is necessary, whether it can be done, and—one question more—what is actually meant by a utility standard?

Let us consider desirability first. Presumably it is desirable because the exhibition standards do not conform to our ideas of utility. But is it the standards which are wrong? In most cases we believe it is not so; it is the judging that is wrong, the pandering to extremists, the craze for certain characteristics, such as size in the Wyandotte and Orpingtons, colour in the Reds, headpoints in the Minorcas, or feather in other breeds. The present standards at least preserve the breed characteristics, and it would appear that we have only to avoid the extremes to fulfil our requirements in that respect.

This being the case, does the necessity for a utility standard exist? and, if it does, what has made it necessary? Presumably the judges differ materially as to the value of the different characteristics. We know they do. One attaches importance to head-points, another ignores them; one is keen on colour, with the result that a fancier often wins on points, where, as an egg-producer, his bird would take a comparatively low place. In some of the Rhode Island Red classes it has been obvious that the judge has been all out for colour, and the layer which has not come up to the mark in this respect has been beaten by an inferior bird as far as laying characteristics are concerned. Again, others are more concerned with anatomical measurements, capacity, etc., and with others these points are subordinated to breed characteristics. For these reasons we must assume that it is claimed that a utility standard is necessary.

We now come to the question as to whether it can be done. What is to be the basis of a standard? Is it to be the anatomical measurements, the length of the breastbone, the width of the back, four or five finger capacity? Is it to be a layer's standard or a breeder's standard? Is there to be a maximum or a minimum weight? What part will the colour factor play in a breed like the Rhode Island Red? Will "red to skin" wrest pride of place from a bird which "handles better" but is dark in under colour? What will be the test for such breeds as the Sussex, the table or the laying quality?

Anatomical measurements we know to be unreliable. As previously pointed out, the anatomical measurements of 20 trap-nested hens, with certified records of 250 eggs, varied in each case, although all were of the same general appearance. Therefore, to base a standard on these measurements would be manifestly absurd, especially as the above has been confirmed by Mr. J. N. Leigh, whose long experience of laying tests lends the greatest weight to his opinion. If, then, they are unreliable, on what is a utility standard to be based? Perhaps some of our readers will express an opinion. In our view a standard would be the greatest handicap to the pedigree breeder, and if the interpretation of the standard by different judges is as weird as the interpretation of the present standards by the exhibition judges, whither shall we be wending? Will there be a standard for males, and on what will it be based? The external characters of a male are no indication of his ability to breed layers. The fallacy of "capacity" in the male has been exploded, although it caused pedigree breeders some little trouble for a time, being advocated by those who out-Hoganed Hogan, but who had never bred a bird in their lives.

There seems to be one other objection to a standard—the danger of widening the breach between the utilitarian and the fancier. Already there are signs that the extremists have had their day; there has been a "coming together," which promises a new era when commonsense will prevail; but a utility standard, based as it would be largely on anatomical measurements, would never appeal to the fancier.

Modern Poultry Feeding.

By TOM NEWMAN.

MAIZE MEAL, BARLEY MEAL, AND SUSSEX GROUND OATS are the whole grain ground to a meal. Of the former there is little to be said, it is rarely adulterated; but with the other two matters are somewhat different.

Barley Meal is frequently adulterated, indeed Kellner speaks of samples which have been made up of 70 per cent. ground oat husks and 30 per cent. of powdered chalk and not a trace of barley, but this is an extreme case. There is no doubt that some samples are adulterated with oat husks, but the chief difficulty with which we have to contend is that it is so often not ground finely enough, with the result that sometimes impaction of the crop is caused. A good sample should be ground almost as finely as ground oats. It can be used in place of maize meal in the mash, although I do not like it so well, but when prices are favourable I should use it. Its chief value is for fattening, and for this purpose it is far superior to maize.

Sussex Ground Oats are ground with specially-cut stones, and it is customary to mix one sack of barley with eight sacks of oats to give the required hardness. This in no way detracts from their value. In a good sample the husk cannot be detected, so finely is it ground. The genuine Sussex ground oat should be creamy in colour, not white, as this indicates the presence of an excess of barley or some other constituent used as adulterant. It should be soft to the touch, somewhat like flour. A good sample of steel-ground oats is of equal value, but in comparison feels a little "gritty." No other meal is so frequently adulterated or misrepresented. Not 50 per cent. of the samples which reach me are the genuine article, some have been heavily adulterated with oat husk meal, others are feed oatmeal, and others simply the oat ground to various degrees of fineness, or, shall I say, of coarseness?

FEED OATMEAL.—When of really good quality may be used in place of the ground oat, but samples vary to an extraordinary degree, and it is not a safe thing to rely on. It is a by-product from the preparation of groats and other foods from the oat, and consists of the ends of the grain and particles of the flour, and the plant hairs, sometimes the latter are separated, and with the husks and some meal are sold as "oat dust feed."

RICE MEAL is obtained from the preparation of "polished rice" for human consumption. Too frequently it is heavily adulterated with rice husks, which are highly indigestible, heavily charged with silica, and have sharp, rough edges which are said to irritate the walls of the stomach and intestines. A good sample should consist of the outer layer of the rice kernel **proper,** together with the germs and a small amount of the hulls. It would have approximately the same value as maize meal, and the composition would be :—

Protein 12.1, Carbohydrates 44.3, Fibre 12.4, Fat 11.4, Ash 9.7.

THE LEGUMENS.—In this class we include the common peas, beans, soya bean, alfalfa meal, and clover meal. The common field pea contains twice as much protein as the cereal grains, the average composition being :—Protein 22.9, Carbohydrates 57.8, Fat 1.1, Ash 3.4, Fibre 5.6.

The common bean has the following composition: —Protein 26.2, Carbohydrates 49.4, Fat 0.9, Ash 3.8, Fibre 7.1.

The soya bean with the oil unextracted has the following analysis :—Protein 33.2, Carbohydrates 30.5, Fat 17.5, Fibre 4.1, Ash 4.7.

The unextracted, owing to its high oil content, is unsafe to feed, as it causes serious digestive trouble. The extracted gives the following analysis:—Protein 44.7, Carbohydrates 31.9, Fibre 5.1, Ash 5.5, Fat 1.5.

From every point of view the extracted soya bean meal is the most valuable of these three, the protein is the best of all the vegetable proteins; it is palatable, it is rich in mineral matter, and is excellent for growing stock, while the Wellingham experiments have proved its value for laying stock.

If fed in excess, or improperly ground, beans and peas tend to cause distension and constipation, and also cause thickening of the blood.

ALFALFA MEAL AND CLOVER MEAL.—It is not too much to say that the value of these two foods to the poultry-keeper has been very much exaggerated, and their cost is out of all proportion to their value. For what do we feed them? Generally they are looked upon as a substitute for green food; we do not feed them for their protein, nor their carbohydrates, and we fed them many years before we knew anything of vitamins. Even if it is now suggested that they are valuable on this account, we have many other sources which are less costly. Then there is but the mineral content, and it is really because they are rich in the important lime salts that we set such store by them. The problem before us is as to whether we can supply these lime salts more economically.

An average sample of alfalfa is better value than the average clover. In the first place it is more reliable, and in the second it is generally harvested earlier than the clover, so that the stalk is not so "woody." As a rule, too, it contains more of the leaf wherein the real value of the plant lies, and its mineral content is better. So much rubbish has been, and still is, sold as clover meal that it is a most unsafe food for the novice to buy; meadow hay, chaff, chaff dust, granary sweepings, and the residue from the threshing of clover for seed have all been planted on the helpless poultry-keeper at prices many times exceeding their value. The latter is the product of an exhausted plant, and can be compared with the pod of a runner or French bean when the seed is ripe, dry leathery and indigestible, a totally different proposition to the succulent pod which we eat before the seed is formed. Yet if the pod was analysed when green and succulent, and dry and leathery, there would not be a great difference in the analysis.

The composition of average samples of clover and alfalfa is as follows:—

Clover.—Protein 12.8, Carbohydrates 37.3, Fats 23, Ash 8.3, Fibre 25.7.

Alfalfa.—Protein 14.9, Carbohydrates 37.3, Fats 25.3, Ash 8.6, Fibre 28.3.

The ash contains 19.5 per cent. lime and 4.74 per cent. chlorin, as against 16 per cent. lime and 2.39 per cent. chlorin of clover.

To meet the uneconomic prices of clover and alfalfa is not so difficult as it seems; the lime salts could easily be supplied with the addition of bone meal, crushed oyster shell or limestone grit dust added to the mash, while any deficiency of chlorin could be furnished by common salt, mixed in the following proportions:—Bone meal 60, oyster shell or limestone 20, salt 20—3 ozs. of this mixture to every 10 lbs. of mash. If swedes or mangolds were given in addition, that would solve the green food problem at this season, and be particularly useful with early chicks. This formula has been given many times before, but I am repeating it now as applicable to the foregoing remarks.

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

FISH MEAL.

Several members have sent me that advertisement from the "Times," which was published in last week's issue, and all have waxed indignant over the enormous profits the fish meal manufacturers are supposed to make. But we must recognise that there is a great shortage of this commodity which explains in a large measure the soaring prices. It is a fact that the demand exceeds supply. As to the enormous profits this particular advertiser hinted could be made, I am given to understand that the fish were to be caught, if not actually where "the spicy breezes blow soft o'er Ceylon's Isle," at least in some blue lagoon, where labour costs nothing, and they are so plentiful, the demand does not exceed supply. When they have been caught, and been ground into meal, and wafted to these shores, there may be a different story to tell. So the moral of it all is, that we must not jump hastily to conclusions, and remember that "Blessed **are** the uses of advertisement."

POST-MORTEMS AND OTHER THINGS.

Capt. Leeney says there is "a humorous side to post-mortems," but no doubt he has a stronger sense of humour than I have. When you get a letter marked "Urgent" and you read, "Found one of my hens dead under the dropping board, please let me know cause of death, and if infectious what precautions to take, a reply by return will oblige," you don't exactly see the humorous side, when you are overwhelmed with correspondence, any more than you do when some sweet innocent asks, "Whether your dry mash is mixed with hot or cold water," as has occurred more than once. It ought to be patent to everyone, that I can't say what this pullet died from, or whether it was infectious or not, and I really can't tell from two flight feathers whether the sender has got Anconas or Exchequer Leghorns.

BLACK BRESSE.

Capt. Nelson Zambra, M.C., West Tisted Manor, Ropley, Hants, has given a cup, to be known as the "Hattingley Cup," for competition amongst members of the Black Bresse Club. The conditions are as follows:—

> "To be competed for at any show (under P.C. rules) putting on classes for Bresse. The Committee of such show to pay 2s. 6d. to the Club to advertise the fact in schedule, and to notify the Hon. Sec., Dr. Hutley, Weybread House, Harleston, after the show the awards made in that colour.
>
> The Cup is confined to members of the British Bresse Club, whose subscriptions have

> been paid at time of entry, and becomes the property of the member gaining most points during the year January 1st-December 31st.
>
> Every card counts—Commended 1, H.C. 2, V.H.C. 3, Reserve 4, 4th 5, 3rd 6, 2nd 7, 1st 8."

Breeders of Bresse are very keen, and the breed has made surprising progress during the last year or two. I hope, for the sake of future progress, that the mad idea that we want them to be bigger will receive a permanent check. If it is encouraged—and I know those who admire the breed and know its value will not encourage it—it will lose all its most valuable characteristics. I have never known an effort to increase the size of a breed, which has not been detrimental to its utility qualities.

THE L2 FACTOR.

I have received the following letter from Mr. Michael Pease, which will interest members :—

> "Sir,—In your issue of December 26th, 1923, your correspondent, Mr. N. H. Porritt, asks 'whether the laws . . . . with regard to the inheritance of the L2 factor have been proved to be correct or not?" I think the majority of theorists (to say nothing of practical breeders) will agree that far more has been definitely asserted about the so-called L2 factor than experiment has so far justified. It may interest your readers to know that an important part of the experimental work which is being undertaken by the new Poultry Breeding Station at Cambridge under the National Poultry Institute Scheme—towards the cost of which the members of the S.P.B.A. so generously contributed—is an investigation into the Inheritance of Fecundity and its relation (if any) to other characters of the fowl. Some preliminary tests were made last year and the first crosses are being made this year; but it may well take some years to rear and test a number of pullets and cockerels sufficiently large to enable a proper analysis of the results to be made.—Yours, etc., MICHAEL PEASE, School of Agriculture, Cambridge."

GLAMORGAN AGRICULTURAL COMMITTEE.

THE FEEDING OF THE BIRDS IN THE COUNTY EGG LAYING TRIALS AT LOWER HOUSE FARM, LLANTWIT MAJOR.

MASH :—This consists of : 10 parts of Bran, 20 parts of Sharps, 5 parts of Maize Meal, 5 parts of Sussex Ground Oats, 4 parts of Fish Meal.

Two of the birds of each pen get daily 2 ozs. of this mash wet, and the other two birds get daily 2 ozs. of the mash dry.

The mash is carefully balanced and has a nutritive ratio of 1 to 5.

GRAIN RATION.—A mixture of equal parts of wheat, oats and kibbled maize is also being fed at the rate of 2 ozs. per bird per day during the winter. In summer the maize will be stopped and a mixture of equal parts of wheat and oats will be fed. Flint Grit and Oyster Shell are fed ad. lib.

The following table shows the quantity of food consumed during the first and second 28-day periods, the total cost of the foods fed to the birds on wet and dry mash respectively, the cost per bird for four weeks, and the cost per bird per week ; also the number of first and second grade eggs laid by birds fed on wet and dry mash :—

	First Period of 28 days. Oct. 14th-Nov. 10th 1923.		Second Period of 28 days. Nov. 11th-Dec. 8th. 1923.	
	Birds on Wet Mash.	Birds on Dry Mash.	Birds on Wet Mash.	Birds on Dry Mash.
	lbs.	lbs.	lbs.	lbs.
Sharps	146	153	141	171
Bran	70	74	69	84
Maize Meal ...	37½	39	36	44
Sussex Ground Oats ...	35	37	31	38
Fish Meal ...	28	30	28	33
Wheat	127	127	109	109
Oats	119	119	75	75
Maize	113	113	120	120
Total cost of food.	£3 5s. 2d.	£3 6s. 9d.	£3 0s. 1½d.	£3 6s. 0d.
Cost per bird :—				
for four weeks...	6.31d.	6.67d.	6 06d.	6.60d.
for one week ...	1.63d.	1.67d.	1.51d.	1.65d.
Eggs laid 1st grade	39	29	36	77
Eggs laid 2nd ,,	379	480	251	514

J. D. DAVIDSON,
Director of Agriculture.

30, Park Place, Cardiff.
21st December, 1923.

GLAMORGAN EGG-LAYING TRIALS.

SECOND MONTHLY INTERIM REPORT (Nov. 11—Dec. 8).

The first ten places taken by pens of four birds each in the Light and Heavy Sections.

LIGHT SECTION.

Name.	Breed.	Eggs Laid. 1st Grade	2nd Grade	Total.	Value. £	s.	d.
1st. J. R. Thomas ...	W. L'horns	9	83	92	0	19	6¼
2nd. C. Spiller	do.	18	67	85	0	19	0½
3rd. C. Spiller	do.	2	68	70	0	14	8¼
4th. Bundy Bros	do.	1	66	67	0	14	5
5th. D. A. Hann	do.	6	58	64	0	13	7¼
6th. R. J. Evans	do.	1	63	64	0	13	5¾
7th. W. J. Jonkins	do.	8	52	60	0	13	3¾
8th. Mrs. W. Jonner ...	do.	—	62	62	0	12	11½
9th. J. Toplis	do.	13	42	55	0	12	8¾
10th. W. J. Jenkins	do.	1	53	54	0	11	0¾

HEAVY SECTION.

Name.	Breed.	Eggs Laid. 1st Grade	2nd Grade	Total.	Value. £	s.	d.
1st. Eaton and Poor	W.W.	6	110	116	1	4	5¾
2nd. R. J. Evans	R.I.R.	—	84	84	0	17	0¾
3rd. J. Joshua	W.W.	1	77	78	0	16	6
4th. Howell and Phillips...	R.I.R.	18	43	61	0	14	1½
5th. T. Rees	W.W.	13	51	64	0	13	8¼
6th. H. Harrop-Griffiths ...	W.W.	—	58	58	0	12	3¾
7th. J. Joshua	R.I.R.	31	12	43	0	11	0¼
8th. Mrs. W. Jenner	W.W.	9	38	47	0	10	6
9th. A. L. Davies	W.W.	1	48	49	0	10	2¾
10th. W. Price	W.W.	—	45	45	0	9	4

HARPER-ADAMS' AGRICULTURAL COLLEGE, NEWPORT, SALOP.

POULTRY LAYING TRIALS—1922-1923.

FINAL REPORT.

The Laying Trials conducted at the College during 1922-1923 possessed no outstanding features, either of pen records or individual performances. A very high level of output was maintained throughout, while right through the year the health of the birds remained excellent.

As in previous years the actual championship goes to a pen of Wyandottes. This year the championship pen is the property of Mr. Burrows, of Diggle, near Oldham—the value of the eggs laid being £10 8s. 11d. This is less, of course, than in past years when egg prices have ruled higher. The actual number of eggs laid being 1,397.

During the early months of the year attention was attracted to a pen of Light Sussex, which succeeded in holding the best position for the four Winter months. It looked as though, for the first time in the history of the Laying Trials, a pen of Light Sussex would pull off the championship. Two birds, however, died, which spoilt the pen's chance. It finished, however, first in the Light Sussex section.

Taking the Small Flock Trials as one unit the average number of eggs laid per bird was 181.11 of the value of just over 36s. Feeding cost per bird was approximately 8s. 5d. per bird. These figures would be reduced by including birds in the Exhibition Section, and slightly increased by including birds competing in the Single Pen Test.

Following the experience of previous years, the birds competing in the Single Pen Test have done better than those in the Small Flock Trials. It is doubtful, however, to what extent the increased egg production is due to the special condition of housing. The bird sent in are specially selected by their owners, and it is probable that the extra care exercised in this respect influences materially the result obtained.

Feeding and the methods of feeding have not varied from previous years, the actual foods used being a combination of those meals generally available for poultrymen. The mash throughout the year was fed wet—no dry mash being used.

Below is given a Summary of Breed Averages and particulars of the Leading Pens:—

SUMMARY OF BREED AVERAGES.

AVERAGES PER PEN OF SIX BIRDS.

	From Sept. 5th to Oct. 2, 1923.			From Nov. 1st, 1922, to Oct. 2nd, 1923.		
	No. of Eggs.	Value.	Weight. oz.	No. of Eggs.	Value	Weight. oz.
EXHIBITION SECTION. All the Birds.	49.25	8/8¾	2.14	973.25	135/8¼	2.08
SMALL FLOCK SECTION.						
Section 1. White Leghorns	48.67	8/7	2.10	1116.96	159/4¾	2.05
„ 2. White Wyandottes	77.76	13/5¼	2.06	1146.64	164/11	2.01
„ 3. R.I. Reds	68.95	12/1¾	2.09	1100.81	158/4¼	2.05
„ 4. Sussex	48.26	8/6½	2.08	1029.78	150/2¼	2.07
„ 5. Rocks	37.75	6/8½	2.10	1030.00	148/10¼	2.08
„ 6. Columbian Wyandottes	39.62	6/11½	2.11	926.00	143/10	2.05
„ 7. Black Leghorns	31.26	5/7	2.10	1028.00	149/0¼	2.05
„ 8. Anconas	37.00	6/7¾	2.13	1000.25	139/0¼	2.08
„ 9. Any Other Light Breed	30.43	5/5½	2.12	1045.85	150/5½	2.08
„ 10. Any Other Heavy Breed	40.22	7/2½	2.11	955.11	139/3½	2.07
All the Birds (Small Flock only)	55.11	9/8¼	2.09	1086.70	156/2	2.05
SINGLE PEN TEST.—Per Bird.						
Section 1. White Leghorns	10.32	1/10	2.13	193.44	28/5	2.06
„ 2. White Wyandottes	17.58	3/1½	2.09	212.68	31/11	2.04
„ 3. Any Other Light Breed	8.22	1/5¾	2.22	189.00	27/6¼	2.15
„ 4. Any Other Heavy Breed	8.62	1/5¾	2.14	176.19	25/8¼	2.08

SUMMARY OF THE LEADING PENS.

Pen No.	Name and Address of Owner.	No. of Eggs.	Value. £ s. d.	Position.
	SECTION I.—WHITE LEGHORNS.			
	Colonel G. E. Spence, Far End, Kirklovington, Yarm-on-Tees	1327	9 18 7	1
	H. Drysdale, Woodcock, Lypiatt Park, Stroud, Gloucestershire	1288	9 18 5	2
	G. Harling, Sandside Poultry Farm, Sandside, Westmoreland	1272	9 10 6	3
	SECTION II.—WHITE WYANDOTTES.			
	A. Burrows, Far Diggle Edge Farm, Diggle, near Oldham	1397	10 8 11	1
	F. H. Collins, St. John's Poultry Farm, Bewdley	1265	10 0 8	2
	Colonel G. E. Spence, Far End, Kirklovington, Yarm-on-Tees	1374	9 18 10	3
	SECTION III.—RHODE ISLAND REDS.			
	Mrs. Livingstone, Mount Lodge, Worplesdon, Surrey	1318	9 10 6	1
	R. Hodgkinson and Son, Boundary Cottage, Culcheth, near Warrington	1181	9 3 7	2
	Mrs. E. Ball, Claybrooke Farm, near Rugby	1148	9 0 10	3
	SECTION IV.—SUSSEX.			
198	F. Rossall Sandford, Ford Hall, near Shrewsbury	1175	9 8 4	1
199	F. W. Slade, Mallards Court, Stokenchurch, Bucks	1220	9 2 5	2
185	J. H. Cooke, Aston, Wem	1190	8 16 0	3
	SECTION V.—ROCKS.			
208	F. H. Welch, Dowles Poultry Farm, Bewdley	1268	9 14 2	1
209	P. B. White, Church View P.F., Little Drayton, Salop	1176	8 18 2	2
205	F. Marsden, Granny Hall Poultry Farm, Brighouse, Yorks	1012	7 14 5	3
	SECTION VI.—COLUMBIAN WYANDOTTES.			
217	L. H. Wace, Kingsland Lodge, Deanminster, Dorset	1128	8 7 2	1
211	S. H. Cann, Little John's Cross, St. Thomas, Exeter	1111	7 19 9	2
214	Sheppard and Britton, 60, Soundwell Road, Staple Hill, Bristol	971	7 4 6	3

SECTION VII.—BLACK LEGHORNS.

Pen No.	Name and Address of Owner.	No. of Eggs.	Value. £ s. d.	Position.
236	G. B. Metcalfe, Claydon Farm, Lochlade, Glos.	1300	10 1 3	1
233	E. Watkins, Writtle House, Cross-in-Hand, Sussex	1223	9 4 9	2
226	W. A. Lansley, St. Vincent, Tilstock, Whitchurch, Salo	1152	8 12 10	3

SECTION VIII.—ANCONAS.

Pen No.	Name and Address of Owner.	No. of Eggs.	Value. £ s. d.	Position.
238	P. K. Berry, Weston-by-Welland, Market Hanborough	1150	7 18 2	1
240	W. Hamnett, The Myrtle Poultry Farm, Blackpool	1048	7 9 2	2
241	The Midlothian Poultry Farm, Gogar, Midlothian	987	6 19 5	3

SECTION IX.—ANY OTHER LIGHT BREED.

Pen No.	Name and Address of Owner.	No. of Eggs.	Value. £ s. d.	Position.
284a	Capt. J. T. M. Mee (Buff Leghorns), Swannington Hall, Norwich	1163	9 2 0	1
246	Mr. and Mrs. Harold Marshall (Black Minorca), Bramshott Manor, Hampshire	1098	8 2 7	2
247	W. Hay Miller (Black Minorcas), Drumbank House, Gilmorton, Edinburgh	1100	7 10 5	3

SECTION X.—ANY OTHER HEAVY BREED.

Pen No.	Name and Address of Owner.	No. of Eggs.	Value. £ s. d.	Position.
257	R. C. Smith (Buff Orpingtons), Pyke Low Farm, Grane, Haslingden, Lancs.	1130	8 10 11	1
253	Longworth Bros. (Buff Orpingtons), Clowes Poultry Yards, Rawtenstall	1078	8 2 4	2
251	The Australorps Farms (Black Orpingtons), Street Court, Kingsland, Herefordshire	1156	8 0 6	3

EXHIBITION SECTION.

Pen No.	Name and Address of Owner.	No. of Eggs.	Value. £ s. d.	Position.
263	W. Marnett (Buff Rocks), The Wrytle P.F., Blackpool	1160	8 12 7	1
265	L. H. Wace (Columbian Wyandottes), Kingsland Lodge, Solway Ash, Bridport...	1055	7 6 10	2
260	Field-Marshall Sir A. A. Barrett (R.I. Reds), Ouse Manor Farms, Sharnbrook, Beds	934	7 4 6	3

SINGLE PEN TEST.

SECTION I.—WHITE LEGHORNS.

Name and Address of Owner.	No. of Eggs.	Value. £ s. d.	Position.
R. Groom, Mains Farm, Walton-le-Dale, Preston, Lancs.	257	1 18 2	1
R. A. and A. H. Johnson, The Cotswold Poultry Farm, Chalford, Glos.	247	1 17 8	2
T. Gardner, The Poultry Farm, Bowgreave, Garstang, Lancs.	248	1 14 11	3

SECTION II.—WHITE WYANDOTTES.

Name and Address of Owner.	No. of Eggs.	Value. £ s. d.	Position.
R. Hodkinson and Son, Boundary Cottage, Culcheth, near Warrington	278	2 3 9	1
M. F. Pholan, Cleave Barton, Northam, North Devon	283	2 1 7	2
H. O. A. Giles, Great Fancy, Crownhills, S. Devon	258	1 18 11	3

SECTION III.—ANY OTHER LIGHT BREED.

Name and Address of Owner.	No. of Eggs.	Value. £ s. d.	Position.
W. F. Groves (Black Leghorn), Shelfield House, Belle Vue, Shrewsbury	213	1 12 10	1
The Co-Operative Wholesale Society (Black Leghorn), Birdie Brow P.F., Mitton, near Whalley, Lancs.	219	1 12 4	2
H. Whiteoak (Ancona), The Grange Poultry Farm, Kildwick, via Keighley	213	1 11 11	3

SECTION IV.—ANY OTHER HEAVY BREED.

Name and Address of Owner.	No. of Eggs.	Value. £ s. d.	Position.
W. M. Golden (Light Sussex), Eaglesfield, Leire, Rugby	255	1 18 5	1
Hodgkinson and Son (R.I. Red), Boundary Poultry Farm, Culcheth, near Warrington	200	1 11 10	2
Mrs. W. Beale (R.I. Red), Manor House, Claybrooke, Rugby	210	1 11 0	3

HANTS COUNTY EGG LAYING TRIALS.

REPORT FOR SECOND PERIOD ENDING 15th DECEMBER, 1923.

Weather conditions have not been good, the majority of the days during the period have been wet or cold. The health of the birds generally has been good. The size of egg is improving.

SECTION B.

Tem. Pos.	Owner's Name.	Eggs laid 2nd Month. 1st Grade.	2nd Grade.	Under Weight.	Total.	Total Eggs to Date. 1st Grade.	2nd Grade.	Under Weight.	Total.	Total to count for Test.	Breed.
1.	Barford Poultry Farm	34	7	—	41	73	8	—	81	81	R.I.R.
2.	Capt. Harper	34	16	1	51	50	25	1	76	75	,,
3.	Mrs. J. H. Drew	31	19	12	62	54	19	12	85	73	Buff Rock.
4.	Mr. J. H. Thompson	20	35	2	57	33	38	2	73	71	W. Wyan.
5.	Mr. D. F. Lawrence	5	28	13	46	7	41	14	62	48	Lgt. Sx.
6.	Mr. R. McKenzie	6	29	3	38	7	34	4	45	41	W. Wyan.
7.	Mr. Martin Cooper	—	18	13	31	1	40	23	64	41	,,
8.	Mr. D. F. Lawrence	12	24	2	38	12	24	2	38	36	R.I.R.
9.	Mr. S. Wilkinson	15	4	—	19	27	6	—	33	33	W. Wyan.
10.	Mr. J. Tongeman	8	14	4	26	8	19	15	42	27	R.I.R.

SECTION A.

Tem. Pos.	Owner's Name.	Eggs laid 2nd Month. 1st Grade.	2nd Grade.	Under Weight.	Total.	Total Eggs to Date. 1st Grade.	2nd Grade.	Under Weight.	Total.	Total to count for Test.	Breed.
1.	Mr. R. McKenzie	4	13	5	22	23	35	10	68	58	W. Leghorn
2.	Lt.-Col. Wailes	2	4	—	6	14	29	—	43	43	,,
3.	Mr. D. W. Gunston	11	8	1	20	26	13	1	40	39	,,
4.	,, ,,	11	3	1	15	23	15	4	42	38	,,
5.	Mr. R. H. Hunter	3	14	1	20	3	28	6	37	31	,,
6.	Mr. K. Pugett	—	7	7	14	—	27	17	44	27	,,
7.	C. F. Rivaz	2	4	1	7	5	16	1	22	21	,,
8.	Mr. S. Wilkinson	—	4	1	5	5	16	1	22	21	,,
9.	Mr. D. F. Lawrence	1	10	—	11	2	19	—	21	21	,,
10.	Barford Poultry Farm	2	15	1	18	3	16	—	19	18	Anconas.

"LEICESTER MERCURY" COUNTY LAYING TRIALS.

The third monthly period of four weeks in the above test concluded on January 6th. The general health of the stock has remained good, no deaths have occurred and the birds are free from disease. A few birds have been broody, and some have not yet quite recovered from their slight moult. The total number of eggs laid to date is 9,841, of which 6,642 were first grade and only 194 under weight. The position of the leading pens is are follows :—

SECTION 1—DIVISION A—LIGHT BREEDS (BIRDS).

	Competitor.	Breed.	Eggs laid.	Value.		
				£	s.	d.
1.	J. and A. Moore	Black Leghorns	323	4	5	9
2.	Mrs. R. Crawford	White Leghorns	318	4	3	1
3.	F. Porter	,,	338	3	18	$1\frac{1}{4}$
4.	W. S. Woodward	,,	297	3	15	$5\frac{3}{4}$
5.	T. F. Wildman	,,	313	3	15	$4\frac{3}{4}$
6.	W. Crooks	,,	293	3	12	$5\frac{1}{2}$

SECTION I—DIVISION B—HEAVY BREEDS (6 BIRDS).

	Competitor.	Breed.	Eggs laid.	£	s.	d.
1.	H. B. Howe	W. Wyandottes	360	4	11	$7\frac{1}{4}$
2.	Mrs. Briars	,,	328	4	3	$0\frac{3}{4}$
3.	E. Hill	R. I. Reds	335	4	1	$2\frac{3}{4}$
4.	A. Wright	,,	318	4	0	$5\frac{1}{4}$
5.	T. F. Wildman	,,	308	3	17	$10\frac{1}{2}$
6.	Mrs. M. V. Hughes	,,	286	3	16	$0\frac{1}{4}$

SECTION 2—ANY BREED (2 BIRDS).

	Competitor.	Breed.	Eggs laid.	£	s.	d.
1.	J. T. Kidger	W. Wyandottes	128	1	12	$5\frac{1}{2}$
2.	Miss D. Walton	W. Leghorns	114	1	7	$10\frac{1}{2}$
3.	J. A. Mills	,,	114	1	6	$0\frac{1}{2}$
4.	Mrs. M. V. Hughes	,,	106	1	4	$5\frac{1}{2}$

H. T. ATKINSON,
County Instructor in Poultry-keeping.

ROCHDALE AND DISTRICT POULTRY LEAGUE

Report of the second period of the Laying Test, held at Stoney Hill Farm, under the supervision of Mr. J. Cook. The weather has not been very good, but the results are satisfactory and the health of the birds excellent :—

	1		2		3		4		Total		Total for two m'ths
	1	2	1	2	1	2	1	2	1	2	
WHITE LEGHORNS:											
J. Wallbrook	23	—	20	—	19	—	—	—	62	—	137
H. Holt	19	—	16	—	17	6	16	2	68	8	111
J. R. Towell	15	—	19	—	—	—	25	—	57	—	109
Core & Pickhover	—	—	—	—	5	—	21	—	26	—	96
A. C. Stott	19	—	—	—	17	—	15	—	51	—	89
A. Taylor	6	5	10	—	20	—	6	—	42	5	86
Woodhead Bros. ...	—	—	19	1	2	—	14	—	35	1	83
J. Hawkard	3	—	—	—	18	—	9	—	30	—	73
Cooper Bros.	19	—	7	—	12	—	15	—	53	—	60
D. Whatmough ...	—	—	9	—	—	—	14	—	23	—	59
Bamford & Holmes	—	—	—	—	19	—	—	—	—	—	53
J. T. Hardman ...	1	—	—	—	10	—	9	—	20	—	44
BLACK LEGHORNS:											
G. E. Leigh	16	—	17	—	16	—	11	—	60	—	88
J. S. Wood	17	—	6	—	3	—	6	—	32	—	50
E. Aspinall	—	—	—	—	13	—	—	—	13	—	38
WHITE WYANDOTTES:											
Core & Pickhover .	19	1	4	1	22	—	14	—	59	2	142
A. Taylor	17	—	19	—	17	—	18	—	71	—	136
Woodhead Bros.	23	—	13	—	10	—	10	1	56	1	133
J. T. Hardman ...	21	—	9	—	22	—	9	—	61	—	104
J. Wallwork	12	—	19	—	—	—	3	—	34	—	55
RHODE I. REDS:											
W. Mills	20	—	—	—	19	2	1	—	42	—	78
P. J. Edwards ...	23	—	—	—	—	—	12	—	35	—	66
BUFF ROCK:											
A. Wellock	20	1	18	—	22	—	11	—	71	1	99

POISONING.

By Capt. H. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

(Continued from Page 43.)

In some previous notes on this subject it was shown, on the authority of Gallagher and others, that a fowl of three or more pounds weight can tolerate a dose of some toxic substances that will prove fatal to a man forty or fifty times as heavy. No sound system of medication of fowls can be relied on until experiments have demonstrated the amount that can be given, and the observed effects under conditions which leave no room for doubt. This would include individual penning and the collection of all dejecta ; and the cost of such experimental work must be very great, and certainly beyond the means of any practising veterinary surgeon, and most of the poultry societies. The munificent grants which many of the States of the American union alone provide for such research in the present impoverished condition of Europe.

Carbolic Acid in five drop doses, given as a solution of one in one thousand of water, proved toxic but not fatal, and repeated experiments with two grain doses and less produced no effect in the majority, or only dullness for a few hours in individuals less tolerant. Those persons who still entertain a great belief in this drug as a preventative and cure for coccidiosis may safely administer it at the rate of a drop per bird per day ; but in the medical and surgical world to-day carbolic acid has lost its pride of place, not by being pushed aside by something merely newer, but for the excellent reason that in laboratory cultures of specific organisms it has been found to preserve or "pickle" them when it was expected to kill. Only in proportions that are irritating does carbolic quickly destroy some of the germs we have to contend with. There was a time when a famous poultry expert boosted carbolic acid as a preventative of contagious abortion in cows, but its absolute inutility was proved by the Ministry of Agriculture, who recovered the living bacilli from an experimental animal that had undergone the so-called saturation. The same expert has switched on to fowls with his carbolic tap. The evidence afforded by correspondents on this drug has not yet been satisfactorily sifted, and no opinion is offered by the present writer who has found the hydrochloric acid and catechu treatment to procure such good results as to recommend its continuance.

Castor oil can be given in Mussolinian doses, such as six and a half drams, with only moderate purging and evidence of bile products in the greenish colour of the evacuations. Quite a large proportion of the dead subjects sent for examination have a short history of illness, in which the sender says that castor oil has been given. My own experience is not in its favour, as I have found repeated doses of warm olive answer better for all the purposes for which castor oil is prescribed; but both act better for the addition of a cordial.

Catechu, which is prescribed so successfully for chicks and for turkey liver disease, seems to be harmless in very large quantities. Chloride of lime and chlorinated lime are generally confused in the "lay" mind. The former is a neutral salt, of which fowls can take a teaspoonful without injury; the latter is very caustic, and by its free chlorine would be repulsive to any bird, and refused. It is mentioned here by way of comparison with the chlorides of other metals in use in medicine, the chlorides of zinc, sodium, etc. That of zinc is caustic, and only known to have been taken by birds in water. Iron, as perchloride, is too caustic, and in taste so styptic that no creature is likely to take it voluntarily or by accident, but chloride of sodium or table salt has caused more deaths than any other drug in the pharmacopæia, or out of it.

Before I was invited to contribute to this journal there was a controversy going on as to salt poisoning, in which I was much interested, as I had in many cases been able to trace the source of the salt when the owners of the poisoned birds stated (as they almost always do), that there was no possibility of their flock having had access to it. To the swill tub it has been traced, and often in this refuse there is strong alkaline washing powders mixed, which is used in reckless quantities by persons who do not themselves pay for it, but desire that it should do the labour they are paid to perform. Pigs as well as fowls suffer in this way. They are the two species of domesticated animals that are relatively intolerant of salt by comparison—that is to say, with cattle, sheep, and horses. Pigs turn purple under the skin if they do not rid themselves by vomition of salt, and ptomaine poisoning from swill, or they break out in eruptions which are frequently made worse by the application of sulphur ointment by the owners, who think it must be parasitic. Food mixed with salt for pigs and bran mashes with salt and nitre for horses have been freely partaken of by hens, and much mischief has been done. The farmhouse keeper, with the habit of utilising everything, pours the liquor of ham boiling or bacon into the swill tub, and instances have come to my knowledge where the poultry food has been directly mixed with it. Sometimes one gets a letter saying that the birds were quite all right until a certain date, and then kept going to the stream or pond for water, then purging. Most of them recover after purging and loss of condition, and a more or less long suspension of laying, in the case of hens, but many die. As showing how salt may be taken in poisonous doses without the source ever being suspected, I may mention the case of a member of this Association who sent a fowl for post-mortem examination and which bore evidence of some irritant, and received a report from me to that effect. A few weeks later he sent another fowl with the same post-mortem appearances, and for my own satisfaction I had an analysis made. As the contents of the crop, proventriculus, and gizzard would be wanted for the analysis I did not empty them in the usual way, but when the analyst reported salt as the toxic agent, he mentioned that he found many green salted runner beans, and I was reminded of two previous cases arising from the same cause. Surplus runner beans are often preserved with heavy layers of salt, but are sometimes found unpalatable and thrown away. Hence the salt poisoning. The refuse of salted herrings have also accounted for trouble in the poultry yard; indeed, there would seem to be no end to the ways in which salt somehow gets conveyed to fowls.

NATIONAL POULTRY COUNCIL.

RATING OF POULTRY FARMS.

All over the country at the present time there are efforts being made by local rating authorities to deny the concession of reduction of rates upon agricultural land to those who are engaged in poultry farming.

This question has been under consideration by the National Poultry Council with a view of securing a decision that would determine the position. A test case has been selected by it, that of Messrs. Whitman Bros., of Golcar, Yorks, and which came before the Huddersfield Magistrates on January 8th. The case for the Urban District Council was that the defendants are using their farm purely as a poultry farm, although they have several cows and a number of pigs, and that, therefore, they could not claim reduction of rates upon the land occupied, consisting of fourteen acres, on the ground that the land was not now agricultural land within the meaning of the Agricultural Ratings Act, 1896, in spite of the fact that for twenty years the farm has been rated as agricultural.

Messrs. Marshall and Woodhouse, instructed by the National Poultry Council, submitted on behalf of the defendants that the land is primarily used for grazing, irrespective of the fact that fowls are allowed to run on the land, which is meadow or pasture, and that they were entitled to relief in respect of rates in that poultry farming is husbandry within the meaning of the Act. Various other cases were cited, and it was intimated that this was regarded as a most important one, and that should it be decided unfavourably to the defendants, the National Poultry Council would probably carry it to the High Court.

After a very lengthy hearing the Bench adjourned the case to March 11th, when a decision will be given.

Correspondence.

THE JUDGING OF UTILITY POULTRY.

To the Editor of "Eggs."

Dear Mr. Newman,—I note a letter, appearing throughout the Poultry Press from Mr. Rodwell, suggesting the necessity for the formation of a standard for judging at Utility Shows.

As a practical breeder and exhibitor, Mr. Rodwell must be fully cognisant of the necessity and desire for such a procedure; but when Mr. Rodwell suggests the calling of a meeting in Manchester, and the selecting of a secretary, then I most respectfully suggest that he is treading on very dangerous ground.

There is no doubt that before long a standard must be formed. It is wrong in principle to allow present conditions to continue. We are simply playing at shop. I maintain, however, that it is not the business of any private individual or self-elected body or persons to form a standard. It is not a parochial matter, but a national affair, affecting every exhibitor, and to which, after being fixed, every judge will be expected to conform. Hence the necessity to proceed with safety.

I suggest that such business absolutely belongs to the National Poultry Council to control. They are our supreme authority in all matters connected with the industry, and they should take steps to establish their position.

The only way that appears to me to be correct is for the National Poultry Council to take the matter in hand, select representatives from the Poultry Club, N.U.P.S., S.P.B.A., The Lancashire Federation and other specialist clubs, and Federations interested. They should then formulate a full list of specifications as to weight, size, shape, etc. Then select a typical cockerel and pullet, have a drawing made by a reputed artist. Their suggestions should then be submitted to the Council for confirmation or alteration where necessary.

There will always be varying degrees of ability in judges, and our object should be to make the standard as fool-proof as possible.

I know there is a strong feeling against any increase in the multiplicity of associations or clubs, but necessity is the mother of invention. I put forward the suggestion that there is a strong necessity for a Judges' Association.

At the present time judges have to compare their views in a haphazard manner, when the occasion occurs, possibly at a few spare moments at show time.

If such an association could be formed, and members could meet once a year at some central place, such as Birmingham, Nottingham, or Dairy Show, to fully air their view and discuss selected specimens of birds, then I feel confident that a more complete fixity of ideas would be generated, exhibitors would get a more certain idea of the genuine value of their birds, and they would obtain a better run for their money than they now frequently obtain.

FRED W. WAIT.

FLOCK AVERAGES.

To the Editor of "Eggs."

Dear Mr. Newman,—Mr. Herbert Rowntree, in his letter published on 2nd January, submits a plea for the institution of some method of calculating flock averages based on the birds which eventually prove to have laid an egg within a given date (31st December) in order to facilitate comparison between flocks which are variously treated as regards periods of culling. I cannot see the advantage of initiating any such measure, unless it be for the purpose of advertising. The flock average is a measure of production of the entire flock solely for the information of the producer, and not for the purpose of advertisement. The producer who culls late has been feeding a number of useless birds; his flock average should have been his barometer, and it will naturally be lower than if he had culled earlier. The producer who culls early may certainly have a higher flock average, showing that his pens are not carrying so many non-layers. I gather that Mr. Rowntree's argument is that the latter can boast of a higher flock average than the former, although at the close the birds of both may be of equal capabilities, cent per cent. This is all very true, but your correspondent is getting away from the essential feature of poultry-keeping—that efficiency which leads to financial success. I presume no man keeps poultry merely for the sake of proclaiming that a certain number of his birds give a certain high flock average, whilst privately he is aware that his pens have been carrying, for a considerable period, birds not worth their upkeep, and which he should have culled long ago. This is not merely placing a premium on inefficiency, but what is worse—it is promoting self-deception.

Mr. Rowntree makes a suggestion which **practically** necessitates trap-nesting. The purpose of a flock average is to eliminate this expensive process under certain circumstances and yet to retain some means of gauging the average output per head. I gather Mr. Rowntree's argument is that until a bird has laid an egg she should not rank among the layers, since he suggests that the flock average should be struck without including her in the calculation up to 31st December. As she is one of the "**should-be** workers" her unproductivity must certainly be to the debit of the whole "gang of workers." These non-layers have to be fed. They are therefore part of the system under which the process is worked. What is to be gained by recording a flock average of, say, 11 per head in a certain month among the known layers whereas the correct average should be, say, 8 per head for the whole flock? There is no virtue in mere figures. Figures are intended as a guide to efficiency, and not to hide the true facts, which, in this case, are that the flock is being fed at a certain cost and that it produces a certain number of eggs which do, or do not, cover their cost of production. This cost of production is based on the **whole** flock, and not on the number of birds believed to be in lay.

I have several times been struck with the tendency, in communications to the Poultry Press, to regard flock average as a fetish. These averages are apt to be deceptive to the public since they do not disclose influencing factors. I contend that they are intended solely for the producer himself, to indicate to him whether the laying capabilities of his flock as a whole are on an economic productive basis. I cannot help thinking that if more attention were paid to cost accounting and less to the academical side of flock averages many producers would be in a stronger financial position. It is quite conceivable that a flock average could be raised very high by such drastic culling as to eliminate even many "paying" layers in order to boast of a very high flock average, whilst the loss on those culls may adversely affect the profit and loss account. I have even heard it suggested that flock averages should be accepted in lieu of trap-nesting. I trust the day is far off when such a proposition is seriously considered.

Yours faithfully,

E.

EARLY HATCHING

(with reference to Winter Records for Registered Stock).

To the Editor of "Eggs."

Dear Mr. Newman,—I have read with much interest your articles on the advisability of Earlier Hatching, preferably in January, and also Mr. Martin Harvey's letters on the subject, and such opens up a very important question for pedigree breeders, which it appears has been overlooked by both you and Mr. Martin Harvey. Your contention is that the best months for hatching out one's stock for egg production is January, and again in April, giving both February and March a miss in baulk. With regard to the latter month, I entirely agree with you, as for some years now I have had a large hatch out during that month, and have always without exception had chicks hatched during that month, lay during August and part of September, then go into a neck moult, cease laying, and only return to the nests to do their duty from mid-December to any time mid-January, which meant a serious loss in the output of eggs during the early winter months. This year exactly the same thing has happened to my early April pullets, whilst those hatched out May 1st have without exception done the best of all the three hatches, but, in my humble opinion, about April 20th would be a better date, birds coming on about October 20th. But my experience is that chicks hatched out about February 1st to 10th are equally as good as those hatched out in January, as after the neck moult they both come on to lay about the same time—namely, October to early November. For heavy breeds, certainly start as early in the year as one can, or for exhibition purposes, but for light breeds give me early February and late April.

This early January hatching raises a very important point to breeders, namely :—If one hatches out in January, how is such person to obtain the winter record for the pullets he is going to breed from, as this early hatching is in line with breeding from twelve-months-old matured pullets? The revised Rule No. 6, altered after last year's Annual Meeting, now reads, that a bird must have a Winter record of not less than 40 eggs to her credit in 90 consecutive days between October 15th and January 15th. Presuming that a breeder does not breed from a pen of pullets of whose winter record he is ignorant, how is such breeding from pullets to be done? Suggest that January 20th is the date one wants hatch to come out, the birds must be in the breeding pen some six weeks previous, which brings date to be about the middle of December at the latest, for the breeding pen to be mated up. Where is your Winter Record? Even is one mated up a pen prior to October 15th, could a Winter Record of 40 eggs be guaranteed from each pullet in the pen? I think not. If, however, one mated up one's pen early in January, then one could pick out the pullets one wished to have by their performance up-to-date, and cycle of eggs; and if one trap-nested for the full twelve months it is quite possible that birds comprising the pullet pen might reach the standard of 40 W.R. and 180 in full year, as required by the new Rule, and could thus be included the following year in the list of pens of Registered Stock. A hatch in early to mid-February would, however, give a pullet a chance of completing her output of 40 eggs in the 90 days prior to being placed in breeding pen, and further, the breeder would know what he or she was doing.

There is another point also to which I would like to refer, and that is the exclusion of the period from November 1st to January 31st from the Rules for Registered Stock, for the required number of eggs to be laid in 90 consecutive days. The alteration from 30 to 40 eggs for the earlier period is very exacting, but is made more so by the exclusion of the later period, the old Rule reading 30 eggs in 90 consecutive days for the first period, and 40 eggs for the second period. A very big jump has been made in the former, and the latter period cut out altogether. Surely we ought to increase more gradually, and raise standard to, say, 40 for first period, and 50 for second period, and later on such might again be raised, if not stiff enough; but I humbly contend that to exclude the latter period is very hard on pedigree breeders as a whole, and especially to those who enter in the large open Laying Tests. I will explain why. Although some Laying Tests start on October 1st and few on October 15th, the three largest Open Tests—namely, the National, the Harper-Adams, and the Northern—all start on November 1st, and breeders who enter in such naturally breed a good percentage of their stock to come on to lay just prior to commencement of test on November 1st, whether birds are early-February hatched or late-April; and consequently, the only period now allowed by Rule 6 in rules for Registered Stock is too early, and does not give a pullet a chance to lay her complement of 40 eggs from November 1st, or a few days previous, to January 15th. Such makes the rule as it now stands far too severe. Consequently, dear Mr. Editor, as you are also the Secretary of the S.P.B.A., I would be so grateful indeed if you would bring this point up at your next Council Meeting, with a view to the inclusion of a later period being allowed in addition to the one now given—namely, October 15th to January 15th. It would also be most interesting to hear or read of other breeder's views on the point in question if you would kindly allow space for such discussion in the columns of your excellent little paper. Thanking you,

I am, your, etc.,

W. OWEN, Captain.

50,000 HEN FARM.

To the Editor of "Eggs."

Dear Sir,—I notice you are good enough to give me the last word—you did not acquire that habit in Fleet Street.

You say that when I said the larger a concern is the greater opportunity it has of adopting divisions of labour and exploiting lower stratas of labour, I merely made an assertion which I am not in a position to prove. I would not undertake to prove that two and two make four; but, on the face of it, if a firm is large enough to employ ten persons, it is conceivable that those ten **might** comprise ten different stratas of labour, whereas it is manifestly impossible for a concern having only one worker to have more than one strata of labour. If this is not proof, what **is** proof? It is absurd for you to say there can be only two stratas of labour—skilled and unskilled. In the first place there is no such thing as unskilled labour; in the second place the experienced and apt poultryman is one strata, the strong, adult labourer is another; and the boy, fresh from school, is another. A lower strata is a cheaper strata, that is all. I admit that you might employ two stratas on a 1,000-hen plant, but if it takes two people to look after 1,000 hens, so much the worse. I note with interest that you class feeding (which "can never become mechanical," presumably because the "hen is not a machine") as "work of a kind which does not require skilled labour."

The point as to why you shifted on to the 50,000-hen plant was well taken because you shifted from one in which the bulk of the work is done by the owner to one which is necessarily run mainly by hired labour. You shifted your argument, therefore, to a farm which has the character of the mammoth farm, and comes in the same category. If "the difficulty after this will be one of control," it will be control of men, not of hens.

Where is the point in Mr. Fielding's statement that he knows only one 50,000-hen farm, and **"the owner does not rear a single chicken?"** All I can see that points to is **the triumph of division of labour.** Thanks! Mr. Fielding's opinion that the 15,000-hen plant is about the limit, really does not settle the matter. Mr. Fielding wrote ("Eggs," January 3rd, Page 3):—"It is obvious that most large commercial flocks are overcrowded, the tendency on all large ranches is in this direction." Previously he wrote ("Eggs," December 19th):—"I may say, in passing, that I have never seen a 10,000 poultry farm with 10,000 layers. In every case they have fallen short." Opinions based on such inconsistent observations are not worth a lot.

I did not try to prove that a farm with 2,000 hens, and a flock average of 170, "did **not** show four times the profit"; that one of 200-egg average did (quoted words yours, emphasis mine); nor did I try to prove that it **did.** Can you not understand that I only was dealing with the **increase** from 170 to 200 on the one hand, and the **increase** in profit due to the economy of labour on the other? I did not write, "Now to raise a flock of 200 **eggs** is going to be a tremendous task." Nor even "to raise a flock of 200 hens." I wrote:—"Now to raise **the** flock **average** to 200 eggs is going to be a tremendous task." I mentioned that the increased average would cost something more for "food, greater losses, extra labour of handling, etc." Well, does it cost more to clean, grade, pack and freight 200 eggs than 170? That is "handling." Does it cost more for wear and tear of boxes? And are you ready to support the very foolish statement of Mr. Higson, that it costs no more in food to get the 200 eggs than the 170? In other words, that you get the 30 eggs out of nothing?

By losses I meant mortality, and I assumed greater mortality because it seems scientific to suppose that in your struggle to raise your average you are working against a limit—not necessarily a fixed limit, though. What is this limit if not the physical capacity of the bird? You will not (probably) breed from the 300-egg bird, because you think that leads to physical disaster; but you are impelled to sail as near as you can—in other words, you are on the verge of physical breakdown. (I, as one who is compelled to follow the course of the small man, am in the same boat.) You talk of selection by eliminating the dud, and of breeding to eliminate variation, but these are only half the truth. You must push on, at the top, against your limit, and you can do that only through variation. Captain Leeney hit the nail on the head when he said a few weeks ago (in "Eggs") that the poultry farmer knows his own business best, and is ready to put up with losses for the compensation of greater results (I am quoting him from memory). But even had the whole of the extra costs of the 30 eggs increase been left out, the figures would still have illustrated my point, as I said they would.

Certainly I did not forget to allow for the cost of maintaining the 170 average in the case of the 2,000-hen plant. I made no charge for this work in the other instance—I have explained what handling meant. I was justified in assuming the best practice in both cases, and did so.

Mr. Higson's letter is hardly worth answering. The statement that "Mr. Jacomb contends that the selective breeding idea is erroneous" is utterly false. This, of course, catches him in two minds, because "if selective breeding were practised," he says, "I should be much more diffident in forecasting its failure." His remarks concerning the man with a limited capital are beside the point. I did not suggest that it is we poor devils who have no bananas who are going to set up the 50,000-hen plants. Our lot is probably to be frozen out by them—if they come in our time.

Mr. Higson is another who mixes up the questions of the mammoth farm and the large or small flock, and to say that I advocate large flocks is another falsehood. I have not discussed that question, **and I don't run large flocks myself.** The mammoth farms, as they develop, will settle this matter for themselves.

In this discussion there has been a tremendous lot of loose thinking. Poultry-keepers don't seem to have time to think what they are writing. Mr. Higson, in denying my statement that it costs more for food for 200 eggs than for 170, says, "the poor layer consumes as much food **proportionately** as the good one, and the extra eggs show a good margin of profit over **the extra food consumed.**" In other words, it costs no more to keep a heavy layer than it does a "dud." So, notwithstanding that the good layer consumes extra food, it costs no more to keep than the "dud," and I am wrong when I say it costs more for food to produce 200 eggs than 170!

If Mr. Higson is in poultry farming to "prove to the foreigner that we can deliver the goods," let him get on with it. I am in it to get my living. It takes a nobler soul than mine to be inspired by the desire to supply "the British housewife with a sanitary egg." I am afraid I cannot rise to such a level of cant. Some "still small voice" whispers that the foreigner has to perpetuate his race of fowls in much the same way that we do, and if his egg is not sanitary it will not hatch.

Finally, Mr. Higson does not believe that commercial egg farming will attract capitalists, because there will not be a sufficient margin of profit for them to handle. Ye Gods! This, from a man who has lived in an age when capitalists have fallen over each other in their anxiety to produce matches at $1\frac{1}{2}$d. per dozen boxes, and umpteen rows of firms for "your farthing change."

Yours truly,
A. E. JACOMB.

(No useful purpose will be served by continuing this controversy. We seem to be splitting straws. We only wish to inform our correspondent that we acquired nothing in Fleet Street.—Editor.)

UTILITY SHOWS.

To the Editor of "Eggs."

Dear Sir,—The doubtful utility of Utility Shows is a subject which is much discussed at the moment, and the breeding of birds for the Utility Exhibition an industry which is fast growing into a farce of the worst description. In connection with this I find the following in one of those dull dictated "visits to a poultry farm" in a local paper:—"The Utility White Wyandottes are headed by a cockerel of ———'s strain, and included in the pen are two pullets which have won cups at utility shows. REGARD IS ALSO BEING MADE TO EGG PRODUCTION." The capitals are mine, and I think comment is superfluous except that it is refreshing in this case to find that egg production is given a thought, if only an afterthought.

Yours,
PHILIP CLAPHAM.

THE BEST BREED FOR THE SMALL MAN.

To the Editor of "Eggs."

Dear Sir,—Apropos of the discussion re the best breed for a moderately-sized plant, I kindly submit my experience of Rhode Island Reds and Light Sussex under conditions that leave very little doubt in my mind as to their value as paying autumn and winter layers, under most trying and **adverse conditions.** My houses, owing to the clay subsoil, were concreted and well littered down with a mixture of peat moss and wheat straw, but so vile have the weather conditions been in this neighbourhood that it has only been by the most careful attention that I have been able to keep the litter anything like dry. Variations of temperature have been so sharp that the clay subsoil has "blown," and caused my thick concrete floors to "Sweat," and the rest can be guessed.

I was in a funk of an outbreak of colds or worse, but, on the contrary, my Reds and Light Sussex have furnished a very agreeable surprise. One morning I came down to find the litter in Pens 1, 2 and 3 was literally soaked owing to rapid condensation, caused after rain by a sudden frost and sunshine following. The next day it poured all day, and things got as bad, but I carefully removed all the damp litter and replaced with straw once again, and so the game has gone on for quite three months here. It has been my most trying experience for over twenty years. As they are all pullets, the Sussex and Reds are mixed in the pens, but were graded carefully for size and forwardness when five months old. The largest went into one pen, the next best into No. 2, and those not so well forward into a third pen—a system that enabled the **smaller birds to escape bullying** and to grow on to as big fowls as their sisters.

I will now give the egg records :—

Pen 1 (8 birds).—Oct. 15-31, 38 eggs; Nov., 110; Dec., 153—Total, 301.

Pen 2 (9 birds).—Oct. 20-31, 57 eggs; Nov., 123; Dec., 164—Total, 344.

Pen 3 (8 birds).—Sept. 14-Oct. 31, 163 eggs; Nov., 154; Dec., 125—Total, 442.

Pen 4 (8 L.S. only).—Sept. 1-Oct. 31, 239; Nov., 110; Dec., 87—Total, 436.

Total for 33 birds, 1,523.

Four of the Sussex have rather spoiled the December record of Pen 6 as they went broody, but have since re-started, while in Pen 1 some of the Reds did not start till later than their sisters. Unfortunately I cannot trap-nest in all my pens, but one Red pullet in Pen 1—the first to start on Oct. 15—laid 86 eggs out of the total of 301 in that pen. She is a beauty, and has been very highly praised for type by an excellent judge of this breed. She is the **most docile bird** I have, and will follow me about like a dog if let out of her pen. She weighs over 5 lbs. now, after having laid as she has, showing that she has stamina.

A final word as to feeding. Morning: Kibbled maize two-thirds; if cold, and oats. Evening: Mash (wet) according to your formula. These birds were hatched on Feb. 26th.

Though a poultry breeder of thirty-odd years' experience, I am always learning **what my birds teach me,** and what "Eggs" has to say is weekly anticipated with great pleasure and benefit.

"EX-AIRMAN."

CHICKS AND CULLING.

To the Editor of "Eggs."

Dear Sir,—The hatching season is on us. After your most interesting correspondence, Earlier Hatching is the order of the day. At once the whole cycle flashes into our minds, and we are already thinking of **next** winter's eggs. Incubators, chicks, rearing, pullets, culling and feeding. All these to consider afresh.

Being Irish I want to begin at the wrong end and work backwards. To get winter eggs we **must cull.** You once sapiently remarked that it is not a question of if one can afford to cull, but **whether one can afford not to cull.** By "culling," I take it you do **not** mean the mere elimination of obvious runts and wasters, but something more than that. You mean the elimination of "probably profit-eaters."

Now if handling tests are mere indications of past performance rather than future ability, and if we do not happen to belong to the eternal Leghorn-Wyandotte gang, but keep white-legged birds, such as Sussex, how and when are we to cull our young pullets if we wish to eliminate the non-producer before the advent of the winter test? You say we **must** cull them, but it seems that it is a case of "guess, and guess again."

I take it that the only three factors you would be able to consider are as follows :—

1. General rate of maturity and progress.
2. General aspect—health, plumage, size, vitality.
3. Consideration of parentage and pedigree performance chart.

You would be lucky if you had No. 3 to consider. Now if the above is correct, it presupposes that the exact date of hatching of each chick should be accurately known, together with the number of its dam and sire. All this cannot be done by mere toe-punching, so that it often must be a question of **which** is the most important to know, date of hatch or pedigree? I vote unhesitatingly for the former, though I do not like to exclude the latter and neglect the valuable asset of pedigree breeding. Leg-rings are not reliable, and entail a lot of time. In France and Belgium chicks are often ringed through the wing membrane, which sounds like an improvement, but not perfection. Would it not be possible to dye the feet or toes of chicks with a certain colour of waterproof dye, leaving us the toe-punch as an indication of parentage? Surely some S.P.B.A. organic chemist could advise us, and we have all the professions in our Association!

I myself did not cull this year beyond throwing out obvious wasters. As a result I must do so now, after an unprofitable winter. I do not want to repeat the experience, for if I do I shall be broke. I must breed only from my best stock, but how am I to eliminate the wasters beforehand, and how am I to keep tab on hatching dates and pedigrees? It is not always possible to be able to fence off each separate batch of chicks from shell to maturity—but mark them somehow we **must.**

I would be very grateful if any of your readers would advise me on this subject, being careful, if when speaking of dyes, to employ strict technical names and not local or trade names, which are often very misleading.

Yours faithfully,

"IRISH."

THE L2 FACTOR.

By G. C. HESELTINE.

The expression L2 appears very frequently in "Eggs." We hear of L2 pullets, L2 cocks, and L2 cockerels. The term is used by all and sundry, from those who ought to know better to those who clearly do not even know what it means. Let us then consider what, and why, and whence it is, since it is apparent that so much confusion attaches to its indiscriminate use. L2 is a scientific expression, one of the dodges which a scientist uses, some say to befog the lay mind, but really to save himself the trouble of continually writing down in full the idea for which it stands.

In everyday life "4d." conveys to its user the idea of the sum of money consisting of four pennies, a penny being the unit copper coin of the Realm, possessing a certain value which can be gauged by exchanging it for something else. At any rate everyone knows what fourpence means, yet the expression itself would convey nothing to one who had learned to read and write only but had not been taught arithmetic. Moreover, the full meaning of "4d." is only appreciated by the one who has learnt Latin as well as arithmetic, for the "d" stands for the latin word "denarius." Further still, the financier has a more intimate appreciation of the meaning of the expression, and so has the economist, the historian (thinking of the strange bedfellows which the Arabic "4" and the Roman "D" make), and, if you like, the philosopher and the psychologist.

But to return to our muttons, to the **entirely** unmathematical mind "4d." conveys nothing. Similarly to the entirely unscientific mind "L2" conveys nothing. It is a scientist's sign, used by him for the concise expression of an idea for his own and other scientists' convenience. That does not mean that the layman may not or cannot understand it—he can, after it has been explained to him by a scientist who does understand it.

The scientist who used "L2" was Raymond Pearl, an American investigator who endeavoured to elucidate the mode of inheritance of fecundity in the domestic fowl. He used it to convey the idea of a "second fecundity factor." He conducted a series of experimental matings with birds which the trap-nest had shown to be high producers and low producers, and he observed that the power or ability to lay well was inherited and that there was a certain method or mode of inheritance—that is, the inheritance was not in any sense haphazard, but proceeded along definite lines. He deduced that fecundity was inherited through the medium of not one single factor but **three** factors, and he named these zero, first and second fecundity factors respectively, and wrote them down as Lo, L1, and L2. He observed also that the factor L1 was inherited in a straightforward way as a simple dominant, in accordance with Mendel's hypothesis—namely, from father or mother to sons and daughters. He further observed that the factor L2 was not inherited in the same way, but it was sex-linked—i.e., passed from the female to her sons only, and from the male to his daughters only. He still further observed that a high producer must inherit both the factor L1 **and** the factor L2. In other words, a bird with the first fecundity factor only is a low producer and the **bird with the second fecundity factor L2 only is also a low producer**; but the bird carrying L1 + L2 is a high producer, or, more correctly, she is **potentially** a high producer since she carries the necessary genetic factors. L1 and L2 are not to be regarded as equal or similar in the sense that the bird carrying both may be regarded as carrying two "doses" of the same factor, but the factor L1 should be regarded as the foundation factor, without which the L2 factor is inoperative.

It will therefore be seen that to call a bird an "L2 bird" is no recommendation at all—if the expression means anything it means that the bird is a **Low producer,** since it lacks the foundation factor L1, without which L2 is useless. Whenever the expression "L2 bird" is used in an advertisement you may take it as quite certain that the user is ignorant, or, in rarer cases, careless of its true meaning.

Now let us see what the originator of the expression has to say about it. He says firstly, and very clearly, that the experiments were conducted with Barred Plymouth Rocks and Cornish Indian Game, and in more than one place he insists that the results obtained and the deductions therefrom apply **only to these particular breeds,** and possibly only to the particular strains with which he was working. Moreover he makes it abundantly clear that since the actual trap-nest records obtained depend to a large extent on environment (housing, feeding, management, climate, etc.) the arbitrary figures which he lays down as indicating the presence of the factors L1 and L2 are only true for the particular conditions under which the experiments were conducted. Pearl even went so far as to show that the numerical value of L1 may differ in the two breeds under observation, and therefore the value of L2 may do so too. Finally he states: **"I wish to emphasise that nothing is further from my desire or intention than to assert that the results of the present study apply unmodified to all races of poultry."**

It is almost incredible that, in spite of all this care and caution on the part of the original investigator, his figures are taken by so many, absolutely untested and uncorroborated, and applied to all breeds under every possible range of environmental conditions. It is most unscientific to pretend that there is any justification for the wholesale application of Pearl's findings to all breeds under all conditions, until experiments have been made to show that they are universally applicable. The effect of feeding alone on the egg yield prevents the universal acceptance of Pearl's figures in their original form. As far as I am aware no investigation has been made on a scientific basis which has corroborated Pearl's figures, but some important work has been done (by Goodale, Hurst, and others) which would seem to show that his findings are most certainly **not** universally true, either as regards the numerical value of the factors or the **mode of inheritance** of the factors.

In view of all the foregoing facts, it is surely time we were a little more explicit, not to say honest, in this matter, and made it clear for the benefit of many who do not know (such as Mr. N. H. Porritt, writing in "Eggs" of December 26th):—That the last Mr. Oscar Smart did not expound, or claim to expound, any **laws** in his book, "The Inheritance of Fecundity in Fowls," and that he was only representing Pearl's work for the benefit of those poultry breeders who were unacquainted with it, and in the ordinary course unlikely to know about it. It is unfortunate that Mr. Smart introduced modifications and drew or implied conclusions for which no scientific evidence was adduced, and it is to be greatly regretted that on this account the book loses very much of the value it might otherwise have had as a scientific treatise or a reliable guide to poultry-keepers who are breeding for egg production.

The relatively small amount of investigation which has been made into the inheritance of fecundity does not throw a great deal of light on the subject, but it is contradictory enough to warn us against accepting any of it without considerable caution and reservation. For example, the work of Goodale with Rhode Island Reds would appear to show that Pearl's findings do not apply to that breed, and the work of Hurst also appears to deny their application to White Wyandottes and White Leghorns. A few facts do emerge, however, and it is well for us to bear them in mind—namely (a) That fecundity is inherited (though **exactly** how we do not know); (b) that the male bird is consequently of great importance (as is now generally recognised); (c) that though arbitrary figures such as those for the winter test are useful as a rough guide, that is at present the limit of their value; and, lastly (d), that the expression L2 as applied to the various British breeds indiscriminately means exactly **nothing** scientifically.

I would like to make it quite clear that I do not wish it to be understood from the above that the work under review is not of great value to poultry breeders from a practical point of view. It is of very great value, but we must realise its limitations, and its practical value depends more on this than on anything else at present. I hope to be able to show in a later article how the results of the investigations made scientifically can be put to practical use by us as poultry breeders to improve the production of our flocks.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package. and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations

C. J. S. (Coventry). Had you been a member of the S.P.B.A. you would have received a Register for your 5s., with a full description of the feeding of chicks "From Shell to Maturity." For the first forty-eight hours the chicks should be kept perfectly quiet and warm. They require no food then as they are living on the yolk of egg which they have absorbed into the abdomen just before leaving the shell. You might give a good dry chick feed as the first feed, preferably made of one part of the flaked cereals, such as "Uveco," "Egg-'em-on," etc., one part of finely cracked wheat, and two parts of pinhead oatmeal. They should have a hopper of dry bran before them and, for the first six days at least, should be given skimmed milk to drink. On the sixth day make up the following mash: 1 measure maize meal, 4 S.G.O., 4 middlings, 1 of meat meal. Mix one measure of the above with four measures of broad bran and feed in hoppers, always before the chicks. Give the grain feed three times a day in addition to this; first two feeds should be merely scratch feeds, but the last as much as the chicks will eat. You must judge the quantity by the demand. If it is quickly cleared up, more next time, but if any left, less. Green food should be given after the sixth day. At four weeks old reduce the proportion of bran to three parts, and at eight weeks put them on the following formula: 4 parts bran, 4 middlings, one each S.G.O., and maize meal, and one of fish or meat meal. The grain feed should be two parts wheat, one of short heavy white oats, one of kibbled maize. At the beginning of September, or when the birds are five months old, reduce the bran to 2 lbs. It is most important that you should see that you have the real broad bran, and that the middlings are the good "floury" middlings, and not fine pollard or middlings which have been adulterated with ground-over bran.

E. S. T. (Handsworth). Limestone grit will answer the purpose of both grit and oyster shell. The shell-less eggs are caused by your mash being too stimulating; stop the mustard, and reduce the meat meal by one-half, and you will have no further bother. Wry tail is highly inheritable, and you should not mate a hen with such a deformity. I do not think you are likely to get very fertile eggs or rearable chicks if you continue as you are feeding now. (2) From what you say, it appears that the capsule is worn out, and you should write to the makers for a new one. Do not remove either felt until the nineteenth day, and leave one in altogether.

R. N. (Harrogate). In spite of this bird's record I think it would be a very great mistake to mate him to the pullets, especially as they are on the small side. He is too closely related, and, although your friend may think differently, I can only repeat what I said before. With such a close mating as this you want exceptional individuals, and to begin with such a defect as lack of size on one side surely you will see is courting disaster. You will find it help you a great deal in future breeding operations if you keep always before you the fact that close matings should only be made with exceptional individuals. (2) The Campine is rather a delicate breed, and I should hardly think would answer under your conditions; the Black Bresse would be much better suited for your purpose; it is a better layer than the Campine.

Samples (Barrow). This chick feed contains too much green pea, lentil and millet, and as these are very difficult to digest it is not a sample I can recommend. The ground oats are good value at 17s. per cwt delivered. The maize gluten is a poor sample and dear at 14s., the percentage of maize offal in it is very high. (2) The pullets are suffering from diarrhoea, due to the excess of fibre in the mash; reduce the clover to one part and the bran to two. This excess of fibre would to some extent account for the eggs being so small. (3) As the room temperature is so low, I would supply moisture from the first. You must not let the chicks stay in the nursery drawer; remove them to the brooder as soon as you can.

Interested (Peterborough). If you use the soya bean meal you must replace the gluten feed with ordinary maize meal. The combination of gluten, maize and fish meal would mean an excess of protein which would be likely to cause kidney trouble. (2) I think the pullet is suffering from layer's cramp; give her a mild dose of Epsom Salts, keep her quiet in a hamper for a little time, and feed on boiled rice dried off with middlings. (3) It is merely a case of reversion; such a bird is only fit for the pot, you must not think of mating him.

Anxious (Warwick). It is impossible for me to say whether your chicks had B.W.D. last year or not. External symptoms are most unreliable, and as the expert made his post-mortem on the spot, it is quite possible that the mortality was due to chill and not B.W.D.; the external symptoms are very similar, and as the outbreak was confined to this brood it seems to me that it was due to chill. There is no cure for B.W.D., the most we can look for is preventive treatment. (2) I am glad you found the "Handling and Observation" charts so helpful, and that after clearing out the duds your egg production did not decrease. I do not believe in handlings as an indication of a male's breeding value.

"Anxious" (South Devon). It is very difficult for me to advise you without handling your birds, but the fact that one laid these three large eggs, weighing 4 ounces each, and that none of the birds have laid since they moulted, and also that they lack energy and appetite, drives me to the conclusion that they are in an over-fat condition. This often occurs to birds as they get through the moult. I suggest that your best plan would be to close the dry mash hoppers until mid-day, give them a small scratch feed in the litter, and see that they have to work for it, and finish up with another feed, also in the litter as the last feed. The fact that they are not keen on the grain indicates that you have been over-feeding.

S. F. (Lincoln). A good wet mash for your birds on the intensive system would be: 2 lbs. bran, 4 middlings, 1 of maize meal, 1 of S.G.O., and one of meat or fish meal. Reserve the bran to dry off the other ingredients with, after scalding. This would be suitable all the year round, and you do not need to change it, either winter or summer. If you want variety, replace the S.G.O. with biscuit meal.

J. K. W. C. (Southsea). I cannot tell you of a wet mash which you could make up in bulk for chicks from the shell to two months old. Obviously you must see that their requirements at the different age would vary considerably. It seems to me, as you have not very brainy people to leave in charge, it would be much simpler if you followed the dry mash principle. If you want a wet mash the best thing to use would be: Biscuit meal moistened and dried off with coarse middlings. This should be given twice daily, and, in addition, you might give them equal parts S.G.O., coarse middlings, one part maize meal, and quarter part meat meal once daily, with a good dry chick feed given as a scratch feed in the litter, just a little twice daily, and as much as they will eat as the last feed at night. Of course, it will be necessary to supply green food after the sixth day, and it would be a good plan to sprinkle one of the wet mashes with a little oyster shell dust. There is no correct amount of poultry mustard to bring layers on. You could give one teaspoonful to every twelve hens in the mash, but it only acts as an irritant, and will not make hens lay which are not in a condition to lay.

"Chicken Farmer" (Suffolk). I am afraid your proposal for laying out £1,000 on a poultry farm is not a very practical one. You suggest spending £500 on a cottage and outbuildings, then 10 acres of land at £20 per acre (which I should think was rather difficult to procure), then £200 for stock and appliances. That is not much, and I suggest that you would be very wrong to start by buying several pens of birds next autumn for stock. Candidly, I think your mistake is in attempting to buy land and a cottage, as this does not leave you sufficient capital on which to make a decent start. You ought to calculate your housing at, at least, 12s. 6s. per bird; that is, assuming you build houses capable of taking two to three hundred birds. Your present proposal would mean a dribbling away of your capital. I would suggest that you read Mr. Capper's article on "One-Man Poultry Farming," which appeared in "Eggs" a few weeks ago, and which we hope to publish in book-form shortly. This will give you a better idea as to how to lay out your money. The last volume of "Eggs," unbound, can be obtained from us at 5s., carriage paid.

B. V. H. (Beckwithshaw). Yes, you could include one part of clover meal (although I would prefer a good sample of alfalfa meal) in the mash for the chicks after they are a week old; but see that it has plenty of leaf in it and has not too much stalk. Your's is the fourth letter we have received this morning informing us that you are taking "Eggs" now in place of all other poultry papers.

E. K. C. (Inverness). I cannot tell you whether this fish meal contains an excess of salt, but it appears to be a good sample. You should always buy fish meal on a guaranteed analysis. I cannot make out what you have done with your birds. You say you gave them a wet mash at night instead of grain feed, and they began to get fat—that was because they had no scratching exercise. Now you have returned to the grain feed and the egg yield has dropped 25 per cent. Well, I think your best plan would be to give as the grain feed only kibbled maize. Keep the dry mash hoppers open all day. Start with a small feed of grain in the litter, say ½ oz. per bird, and finish up with 1½ oz. per bird as the last feed. The great thing to do is to keep these birds scratching. I cannot tell you anything about the two sick pullets. The symptoms you describe are common to all kinds of sick birds. The crooked breast bones are due to your having unsuitable perches. If you were to follow the advice so repeatedly given in "Eggs," and made the perches plaster only ½ inch, and eight or ten in a row, and some 18 inches off the ground, these crooked breast bones would not have occurred.

A. M. K. (Petersfield). As your birds have a run over a large grass field for an hour, it is hardly necessary to use alfalfa or give them cabbage. There is nothing injurious in the heather or the myrtle berries or bracken, and if they have a run such as you suggest later on it ought to be all to their advantage. I am afraid I cannot advise you about the few birds that are laying small eggs. This is probably inherent.

W. A. (Coventry). A house 24 ft. by 12 ft. would not be large enough for 100 birds on the semi-intensive system—that is less than three square feet per bird, and that is not sufficient. Eighty birds is the maximum number you should keep in such a house. Calculate your birds on the semi-intensive system at 300 to the acre, and you will be safe as to the size of land. Certainly this house would be too small for Wyandottes.

Ilston (Malpas). The best way to use the ground oats and wheat meal would be as follows for laying stock:—1 lb. bran, 1 malt culms, 4 pollards, 1 wheat meal, 2 ground oats, 1 meat or fish meal. For chicks increase the bran to 3 lbs., omit the malt culms, and use fine middlings instead of pollards, and reduce the fish or meat meal to ½ lb. These are dry mashes, and the bran should be broad bran.

A. P. (Harleston). Your birds are not being properly fed. The mash should be 1 part bran, 3 middlings, 1 biscuit meal, and ½ meat meal. You are not giving any animal food at present, and the barley meal is not suitable under your conditions. Give 2½ ozs. of the mash weighed dry, and about 1½ ozs. of grain in the scratching litter. Have they a supply of oyster shell?

A. C. (—). You must remember that when I am replying to anyone in these columns I have to consider their particular cases, and all formulas will not suit the same case. If you will send a postcard to these offices, we will send you a pamphlet which will tell you all about the dried milk feeding.

H. A. G. (Horley). In reply to yours, re Incubation and Cooling, of course a certain amount of cooling takes place when the eggs are turned and tested, but don't you see the difference? If you come out of a warm room and stand in the cold for ten minutes or a quarter of an hour you get chilled, but if you walk out and return almost at once you don't. Non-cooling is irrespective of type of machine. If your eggs dried down too rapidly last year give more moisture; you can't apply maker's instructions to all conditions, perhaps your machine was over-ventilated. (2) You can mix the oatmeal with goat's milk, then the buttermilk would be unnecessary; put them on an ordinary formula at three months old. (3) The fact that the second chamber is warmed would not have a bad effect on the drinking water if you kept the vessel clean; it would be the best place to keep it. You will see by our rules that we cannot reply to non-members of the S.P.B.A. by post unless a fee of 2s. 6d. is enclosed.

H. R. (Pett). For a grain feed you could use two parts wheat, one oats, one barley, but I cannot give you one which would in any case help you to reduce the quantity of mash fed. The only suggestion I can make is that you replace the ground oats with barley meal and have your peas ground, and replace the germ meal with them.

L. E. D. (Lingfield). The samples you send are all good with the exception of the middlings at 10s., which are not good enough. It would pay you much better to buy those at 11s. I really cannot tell you how to get your breeding stock to lay. The question is a matter of condition. The food that you are giving them ought to make them lay well. Just handle them and see whether they are too fat or in under-condition. You can easily do this by feeling the abdomen. If this is tight and hard you will know they are over-fat; if it is shrunken they are in under-condition, but if it is fairly full and supple they are all right. I cannot tell why your birds have not recovered from the moult. There must be some reason for it. All these things are so much a matter of condition, and it is so much easier for you to know the bodily condition of your birds, being on the spot, than for me sitting in an office to do so. It is not necessary to give skim milk to drink when you are feeding dried milk in the mash. Thanks for your appreciation of "Eggs." I am glad to know that my feeding methods have proved most satisfactory.

C. B. (Sandrock). The sample of bran you send is not a particularly good one. I should hardly describe it as broad bran. The crushed linseed is very good. The maize germ is a good sample. The middlings are also good. The fish meal appears to be a good sample, but you should always buy this on a guaranteed analysis that the salt content does not exceed 4 per cent. The dried yeast is a really good sample. The ground oats are not "Sussex" ground, but they are a good sample of ground oats, and could be used in place of the Sussex ground, although I am inclined to think there is a fairly high percentage of barley mixed with them. The alfalfa is a good sample, but contains a little too much stalk. I think your wisest plan now would be, as the egg yield has dropped, to reduce the bran to two parts. Just handle the birds and see whether, as they have been laying heavily, they are a little in under-condition. A bird often looks well when she wants just the finishing touch that makes the difference between a maintenance ration and a productive one. There is nothing wrong with your feeding or the samples you send.

"Kirkwood" (Norwich). I am afraid that you have no alternative but to kill the Black Bresse pullet. It is a case of a broken egg in the oviduct, and no treatment is likely to be effective. It is a pity, but I think there is something organically wrong with this bird. There should be nothing in your feeding to account for this, except for the possibility that you are overdoing the meat meal in the patent food. You say they have as much as they like, but not what percentage they are using. I am almost confident that the feeding is not at fault. I am glad you find "Eggs" so useful, and also your relations in Canada and South Africa, and that the "Handling and Observation" Charts which you sent to South Africa were so much appreciated.

K. P. F. (Newent). The sample of oats you send are not "Sussex" ground, and, as you say, there is a percentage of barley in it. I cannot undertake to have it analysed for you and to say what the percentage of barley is. It is fraud to sell such a thing as this as Sussex ground oats. As I have so repeatedly stated in these columns, it is difficult to detect the hull of the oat in a pure sample of Sussex ground oats, and here it is as long as your finger nail—perfectly discernable at a glance.

M. L. B. (Tinterton). The alfalfa flour is really the best sample, but I doubt its value at 18s. 6d. cwt. No. 2, at 15s. 9d., would perhaps be the most economical. There is a good deal of stalk in it, but the fibre of alfalfa is far more digestible than that of clover meal. The Sussex ground oats are quite a good sample, and extremely good value at 14s. 3d. cwt. The limestone dust is also very good, as is the bone meal.

L. B. H. (Ercall Heath). It is very difficult to obtain a supply of green food at this season of the year, but minced swedes would be useful and sprouted oats would also help, although both these are deficient in the important lime salts. You might try mustard and cress and later on a little cooked cabbage, but not the coarse outside leaves as these are of very little value. When there is no sign of a cold a sneeze indicates most frequently that the bird has inhaled a good deal of dust, particularly is this caused where moss litter is used. The only treatment would be to remove the cause.

W. L. (Egremont). The samples you send are all of good quality ; the fish meal you should buy on analysis. As far as I can tell the cheaper sample is equally as good as the other ; the meat meal is a good sample, but you ought to be able to buy something equally as good at 20s. per cwt. I think the maize meal is a shilling a cwt. too dear. The firm you mention have a good reputation; samples I have seen have proved very satisfactory.

R. S. V. (W. Bridgford). I am afraid I cannot answer your question, as we have no reliable tests as to the relative value of milk and fish protein. For body maintenance 3 per cent. of milk protein is sufficient; roughly, I should say that 10 ozs. of milk and 4 of dried yeast would be equivalent to a pound of fish meal, but this is largely guess-work. I have very little data to go on. For a best proportion for a chick-rearing mash irrespective of cost from the ingredients you name, the following would be best:—Dried milk 20, yeast 5, middlings 45, Sussex ground oats 30.

E. E. (Keighley). This is a fairly good sample of ground oats, but a little dear at 18s. cwt. I think there has been a small percentage of barley added, but in spite of that it is above the average.

POST-MORTEMS.

"B."—The White Leghorn hen is the subject of chicken pox (cutaneous psorospermosis), which is very infectious, and when advanced most difficult to cure; but if recognised early, and the wart-like bodies scraped clean off, and the raw surface cauterised with nitrate of silver pencil or sulphate of copper, will not grow again. You need to weed out all suspects and isolate them and disinfect thoroughly, and keep a most watchful eye on the flock. Egg to be set should be lightly sponged over with methylated spirit. The crusts should be carefully collected and burned, and special attention given to nest boxes and floors, because some of the growths crumble and fall off, but retain their infectivity for years. Please read the published instructions and comply with the requirements.

"J."—The chicks had infectious enteritis unfortunately. Although treatment of the infected is hopeless, we have good reason to believe that fortification against it is aided by giving drinking water in which 30 grains of citrate of iron and quinine has been dissolved in each gallon. One need not emphasise the importance of thorough disinfection.

W. A. G. W. Apoplexy. The liver was almost black, and one wonders if spices have been used. She was a backward pullet.

J. S. H. The Wyandotte pullet had haemorrhage into the lung. Yes, frosted cabbages, partaken of when "as hard as a board," would account for the upset of the bowels. There was an acutely-inflamed area, but it was the bleeding into the right lung from which she failed. She was very fat inside although muscularly poor. Why do you ladies not learn the art of dislocating the neck, instead of dragging their heads off? Three gory corpses have in one morning come to me in this condition.

L. B. W. The White Leghorn was suffering from haemorrhoids, not vent gleet or other infectious disease, and might have been cured if she could have passed the unshelled egg, which caused her to strain and evert a portion of the rectum. There were some recent notes in this paper on vent troubles to which your attention is invited.

"R." Both birds were suffering from a very contagious venereal disease, generally known as vent gleet, and mentioned in recent articles in "Eggs," which please see. Unless you promptly segregate all suspects the prospect is very bad. Advanced cases, such as those sent, had better be destroyed, unless you are willing to spend very much time in treatment on the lines indicated in "Eggs" of December 12th and 19th. If you have not kept your copies of those numbers, will you please apply for them to Mr. Newman, as they are too long for repetition in a letter.

"P." The hen was affected with chicken-pox (contagious epithelioma or psorospermosis), and the growths upon the eyelids had caused suppuration in the orbit, from which I withdrew a solid mass of caseous material which had not affected the eye itself, any more than one-eyed roup does, but acts as a curtain preventing the bird from seeing out of the swollen lids. (2) The "yellow lumps in the mouth" are diphtheritic deposits, and very infectious. They should be scraped away and the matter burned, and the membranes painted with tincture of iodine. Altogether I fear you are in a very bad way, and that slaughtering out would in the end be less of a loss than treatment. If only one house is affected, it may be possible to control the disease, and let the person who attends to them confine himself to that section. A daily careful inspection would enable you to pick out curable cases. Iron and quinine, as citrate, and in the proportion of forty grains to the gallon of drinking water, should be given. Thorough disinfection is essential.

M. I regret to inform you that the chicks are infected with Bacillary White Diarrhoea, and I fear the worst. They have had a minimum period of incubation of the disease, and it is in virulent form. Any treatment when once the disease is manifest is quite useless. Every effort should be made to restrict it to the one hatch, by disinfection and restrictions as to persons in attendance not being allowed to visit them or use same utensils. Experience of former years seems to prove that chicks may be fortified against infection to a great extent by giving iron and quinine in the drinking water. Twenty grains to the gallon for very young chicken like these.

M. M. W. The description you give of the pullet's illness is consistent with ptomaine poisoning, and the "limberneck" in particular points that way. I found the carcase very dry and the bird undeveloped; a poor specimen, not worth keeping in fact. (2) Yes, over-stimulation with artificial ovary forcers is a frequent cause of trouble when they are withdrawn from the ration. The brain would have given clearer indications if the head had not been torn off. The only satisfaction my report affords is, that I can say there was no infectious disease.

C. A. H. The Rhode Island Red pullet had an immense clot of blood filling the thigh, from the hip joint to the hock, and I am surprised that you make no mention of lameness or immobility on her part during life. I explored for a foreign body but did not find one, nor any opening in the skin, but should make a guess that she got caught in a gate blowing to, or some other external violence. She had more than an inch of belly fat, which was oppressing the organs generally. The White Leghorn had pericarditis, the sac being covered by the fungus deposit (aspergillosis) and the heart substance itself, and the capsule of the liver in part, with the same. It would appear to you as if flour had been shaken on to the moist surfaces. The fungus (aspergillus fumigatus) is derived from mouldy forage and damp habitations, and is a saprophyte which, when transferred from its life outside to warmth and moisture of a bird, makes rapid growth and multiplication. Ferruginous water is advised as a preventive, and removal of mildewed sacks and rotten wood and a careful examination of damaged foodstuffs. Drying winds should be taken advantage of for making a draught through the houses while the fowls are shut out in the day-time.

"M." The pullet had acute tuberculosis affecting the bowels and mesentery, and the distension you observed was not "gas," but fluid produced by peritonitis. Quite half-a-pint of fluid was contained within the abdomen. As you are already taking precautions against infectious disease, there is nothing more that I can advise, but would remind you that the T.B. organisms are expelled with the droppings, and come in contact with food, and are thus acquired more often than in any other way. If you can remove to fresh ground, and heavily salt and lime the old, and feed only from troughs and hoppers, and never scatter grain upon the ground, you will reduce the risks of infection.

L. The chicks had pneumonia, which is likely to prove infectious, and every precaution should be taken including ferruginous water to drink. As a general fortifier against disease one can recommend 20 grains of citrate of iron and quinine to the gallon. Absorption of the yolk sac had been arrested, and the material had assumed a cheese-like condition. The gizzards contained much indigestible fibre and the bowels were inflamed. They were fed too soon, I should say, and not suffering from an "insufficiency," as you seem to think.

"R." I find the chick had double pneumonia of an infectious type. See other replies respecting disinfection and the giving of tonics as an aid to resistance. In the one sent, the yolk had been all absorbed. Non-absorption may be caused by too early feeding, by variable temperatures, and by any of the infantile diseases which check the structural changes from the embryonic condition of the newly-hatched. If, as would appear from your letter, you make post-mortem examinations yourself, you will observe the livers are quite yellow in the newly-hatched, but become chocolate in a week if processes are normal.

"Perplexed." I also am "perplexed." I expected to find the windpipe occluded with diphtheritic material, but only found the larynx acutely inflamed, a condition which fowls tolerate because they are relatively insensitive, as compared with mammals. The catarrh you have observed in others may account for it. All the organs were normal with the exception named.

"S." The chicks had infectious enteritis. Allowing for a period of incubation of four or five days, they must have been infected during the first 50 hours. They were constitutionally feeble, and the yolk sac hardened instead of being absorbed. The gizzards were packed with food and grit, but no ingesta had reached the intestine. One of them had double pneumonia.

T. J. M. Internal haemorrhage was the cause of death. The liver had undergone amyloid degeneration and was broken, and from thence came the blood. It is not an infectious disease, but is attributed to errors of diet. There have been many more cases since fish meal came into use, and the greater consumption of spices and other stimulants.

R. Both chicken were affected with pneumonia, but not the typical infectious variety. The accidental acquisition of this disease by chills or foul air too often leads to septic pneumonia, and every precaution should be taken against it, including the administration of iron and quinine in the drinking water. A suitable proportion for very young birds is twenty grains of the citrate to the gallon of water. These chicks had done very well up to a certain point, the yolk sacs being absorbed and the liver a good chocolate colour. The alimentary canal was quite normal, and food suitable. The disposition to constipation you speak of would be accounted for by increased temperature.

E. M. A much diseased uterus had given way and permitted the escape of a free egg-tumour into the abdominal cavity, setting up peritonitis. No infectious disease, but one of the casualties that may occur in any flock, and nothing to do with feeding. Trap-nesting would have called your attention to this bird, as not laying for some time past.

G. The "spots" are those of favus or ringworm, and they are contagious, but not to a virulent extent. They are, indeed, so slow to invade a flock that there is plenty of time to cure it in the individual by scraping off the yellow scab and painting with a solution of iodine of the strength of one in sixteen. If you will go carefully through the flock and give such a dressing to all suspects there should be no serious subsequent trouble.

P. L. I should attribute all three cases to chill affecting the spinal cord, but in different areas and producing cramp in one, and what you describe as staggers in the other two. One of the staggerers had the lung of one side congested, but I arrive at the conclusion that it is only due to lying on that side. (2) No, there was no lack of bulk in the food. The glandular stomach contents were pultaceous, and that of the gizzard on the dry side, as it should be. (3) No sign of inflammation of intestines or of disagreement of any foods or imperfect digestion. A purely nervous trouble I should say. Please do not pack in loose moss litter, as it messes up the subjects and obscures what one wishes to see.

M. A. T. I find the R.I.R. hen had inflammation of the kidneys and an atrophied liver. Some poisonous substance would be the probable cause of the former, and the latter is the result of degeneration from the fatty enlargement which a too rich dietary caused in the first place. When the true heptaic cells have been pressed out of action, the substance shrinks away. This was no more than a fourth of the normal size. She had not been laying for some time, and the ovarium was quite small. Could there have been anything in the "hot scraps" or any poisonous seeds in the field to which they have access? The condition of the organs is beyond doubt; but the cause is obscure.

G. The cock had haemorrhage into the brain and into the posterior chamber of the left eye. He was much emaciated and could not have been fit for mating at any time. The testes were no larger than those of a two months' Leghorn. May I suggest more handling to keep yourself informed as to condition?

"P." None of these chicks had any definite lesions of disease, but had lived entirely on the yolk, and when that supply ceased had failed to digest anything. All gizzards were full and intestines empty, and their livers remained in the yellow ochre embryonic undeveloped condition. I note that "one hatch hatched 12 hours late, and that most of the deaths occurred in this one." This remark and the post-mortem findings suggest want of stamina inherited, or some check during incubation, for neither of which can one prescribe anything.

"H. D. S." This chick was not affected with any infectious disease, and its death may be regarded as accidental, the yolk sac having burst and spread among the bowels and caused acute peritonitis.

E. H. Ringwood. I could find no definite lesions pointing to infectious or any known disease, but there was stricture of the gall duct, and the gall bladder greatly distended. This may have caused an auto-intoxication by absorption of bile, but had not produced the yellow staining of the tissues one looks for under the circumstances. It is not likely that other losses could be attributed to the same cause. The fits you refer to would, of course, indicate some nervous disturbance, and may be the result of misdirected heat radiation.

"M." All three chicks had greatly enlarged hearts and acute congestion of the lungs; not infectious pneumonia, but the result of some atmospheric condition, and lung poisoning. There is something radically wrong in the management which causes them to breathe a vitiated atmosphere. This also accounts for "a kind of fit and funny on their legs." They are, in fact, intoxicated by what they breathe.

"S." I regret to inform you that your chicks are infected with enteritis or what is called white scour **when they live long enough to scour.** There is nothing you can do for the sick, but every effort must be made to prevent its spread by disinfection and isolation, and by giving to all the survivors water to drink with 20 grains to the gallon of citrate of iron and quinine. This fortifies them, and I have had good reports for two seasons, so strongly advise you to try it.

"D." I regret having to report infectious enteritis in two of the chicks, and pneumonia in the other four. From the character and condition of the morbid products I should judge they were infected during the first two days. Every means should be adopted to isolate and disinfect equipment and prevent spread to other incubators and brooders. Give a scruple of citrate of iron and quinine to each gallon of drinking water to the chicks that have not failed. No treatment of those affected is of any use. H. LEENEY.

POST YOUR COPY EARLY

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

S.P.B.A.

(Continued from Page 58).

Mr. Philip K. Berry, of Weston-by-Welland Poultry Farm, Market Harborough, has written me to say he has received a postcard as under:—

Blacksmiths Lane,
Calow, Nr. Chesterfield,
9th January, 1924.

"Dear Sir,—Will you please send me your Mating List of Anconas for 1924, and oblige."

As the writer of this postcard omitted his signature Mr. Berry is unable to send the required list.

LIVERPOOL AND DISTRICT BRANCH.

THE FOURTH ANNUAL GENERAL MEETING of the above Branch will be held on Wednesday, the 30th January, 1924, at 7.30 p.m., in the Common Hall, 3, Hackins Hey, Dale Street, Liverpool.—W. B. Cleaver, Hon. Sec.

The many friends of Mrs. Hodgins, who is such an active member of the Committee of our Liverpool Branch, will regret to hear that she met with a serious accident recently. She is, however, making good progress, and hopes to be about again in February. Meanwhile her Manager, Mr. Ward, who has been with her for some years, will attend to all business matters during her illness and convalescence

LECTURE AT MANCHESTER.

The sixth of the series of poultry lectures under the auspices of the Manchester Agricultural Committee was given at the Chapel Street Council School, Levenshulme, on Friday evening, January 4th, 1924, Councillor M. E. Mitchell, J.P., presiding.

The Chairman, in introducing Mr. Joe Edmondson, of Balderstone, whose subject was "Poultry Diseases—Their Prevention and Cure," drew attention to the fact that greater knowledge could be disseminated by practical poultry farmers than could reasonably be expected from theorists. (The Chairman may convey to his colleagues of the Manchester Agricultural Committee that the citizens appreciate very highly their efforts in providing practical men to give lectures.)

Mr. Edmondson commenced to deal with his subject, "What is Disease?"—that state of the system in which we are not well; really, a variation of the body from that which constitutes health. With disease we find various functions are altered, some by increased action, others minimised. The greater the variation from normal, the worse the disease. It might be said disease was an effort of the system to work in harmony with its surroundings rather than wrong action. Every organ required vital force for the performance of its functions, then all may work harmoniously, and health is its reward. Wrong feeding and overfeeding are two factors which result in throwing the system out of gear, consequently ill-health follows. When organs are overtaxed the system draws force from less important ones, and supplies it to the overtaxed; but if the overtaxing continues a breakdown in health must be expected. It may be said there are three causes responsible for disease :—

1. Weak stock as breeders.
2. The human element by neglecting natural laws and the elementary laws of hygiene.
3. The neighbour who is the contributor of No. 2 to the disadvantage of his neighbour.

The presence of disease tells some blunder has occurred, and is a warning to improve our ways and methods. One of the commonest causes of disease is overcrowding, this often arising through success. Having done well, it is attempted to multiply that success with double the stock, but only the same accommodation; hence filthy and tainted runs, no grass, only a bare and dirty clay pit. Fowls should have 15 square yards per bird for the runs, and for purely intensive poultry-keeping six square feet per bird; and it is better to be generous and safe than always on the brink of disaster. The use of simple foodstuffs, pure clean water, light and sunshine, the great preventer of disease; a good supply of fresh air—adequate ventilation, avoiding draughts, green food, ad. lib., will ensure good health and the best guide to prevention of disease. Nutrition and health being linked together, a body properly fed and nourished become in a strong position to fight and resist the disease germs abounding in our very midst. In the treatment of disease, fasting and purgatives are two of the best remedies, for as the worn-out and tired body needs rest and quiet, so the disarranged system—digestive trouble the forerunner of other troubles—need rest by fasting and cleansing, it being essential, internal as well as external, the body be clean.

The lecturer now proceeded through a list of diseases to which fowls are subject, stating the symptoms and remedies.

Many questions were now put to the lecturer, and the goodly audience received many valuable hints and recipes which, on the least sign of trouble in their own poultry yards, will keep Mr. Joe Edmondson in their memory.

A hearty vote of thanks brought the meeting to a close. W. G.

APPLICANTS FOR MEMBERSHIP.

Offord, E., 12, Days Lane, Sidcup, Kent.
Neame, Messrs. F. and T., The Offices, Macknade, Faversham, Kent.
Arnold, Mrs. S., Blundeston Hall, Lowestoft, Suffolk.
Knight, Miss M. K., Pondlake Farm, Lingfield, Surrey.
Dean, H. W., Yew Tree P. Farm, Birchencliffe, Huddersfield.
Burchell, Mrs. B., Thorpe-on-the-Hill, Lincoln.
Joyce, Capt. E. H., Temple Grafton, Alcester.
Wadsworth, W., Wood End Poultry Farm, Penistone.
Streatfield, A. C., Chanters House, Pilton, Shepton Mallett, Som.
Bonaventure, Sister Mary, Franciscan Convent, Taunton, Som.

Coulter, J. B., Stapleford Abbotts, Nr. Romford, Essex.
Gardner, W., Willow Bridge Poultry Farm, Catforth, Preston, Lancs.
Gledhill, J., Longley, Nr. Holmfirth, Yorks.
Fletcher-Shaw, Dr. Wm., 5, Park Crescent, Victoria Park, Manchester.
Abel, Mrs., U.F. Manse, Pitmedden, Udny, Aberdeenshire.
Perry, Frank, Whiscombe P.F., Somerton Field Road, Nr. Langport, Som.
Ogilvy, Wm., 3, Elm Street, Kirriemuir, Forfarshire.
Bull, R. B., "Morwell" Cycle Depot, Gunnislake, Cornwall.
Smith, H., The Mill House, Elmham, Norfolk.
Hammond, Percy C., c-o Government House, Bermuda.
Henley, H. C., Station Road, Woodbridge, Suffolk.
Allfrey, Maj. H. S., Nordan Hall, Leominster.
Best, H. S., Masons Farm, Castlemorton, Malvern.
Haddon, Mrs. C. M., "Linthorpe," Great Barton, Bury St. Edmunds.
Hatchell, Miss M., Puxtye, Sandhurst, Kent.
Sutcliffe, Geo. D., Bichcliffe P.F., Stanah Road, Thornton-le-Fylde.
Caine, J. F., 90, Ridgmount Gardens, Francis Street, W.C.1.
Driver, Miss G., The Laurels, Stratton, Cirencester, Glos.
Gosling, A. J., The Hatch, Plumberow Road, Hockley, Essex.
Rushworth, W., 24, Thornton Road, Queensbury, Nr. Bradford.
Brown, W. J. Scott, 79, Aston Lane, Perry Barr, Birmingham.
King, Wm., Broom Close, London Road, Bath Road, Slough, Bucks.
Macham, T. C., Keele, Newcastle, Staffs.
Russell, Miss E., Mid Cathkin Poultry Farm, Rutherglen.
Tingle, F., 3, Neville Street, Higher Openshaw, Manchester.
Porrett, W. R., Pen-y-Lan P.F., Launaels, Stratton, Cornwall.
Grant, J. A., The Poultry Farm, Mundford Road, Brandon, Norfolk.
Bramley, H. S., "Shrublands," Graffham, W. Sussex.
Fooks, R. H., "La Ferme," Route de Monteauvaire, Cleres, Seine Inferieure, France.
Fooks, Frank E., Domaine de Cleres, Cleres, Seine Inferieure, France.
Hateley, G. V., 5, Beaufort Road, Erdington, Birmingham.
Cottrell, Mrs. H. C., Orway House, Kentisbeare, Cullompton.
Taylor, Mrs. B., Green Head P.F., Cullingworth, Bradford.
Earl, Miss E., "Longacre," Moor Lane, Wilmslow, Cheshire.
King, H. A. (Junr.), The Limberlost, Welwyn, Herts.
Callcut, Jas. G., The Limberlost, Welwyn, Herts.
Clark, E., The Poplars, Curtisden Green, Kent.
Milnes, Miss E., "Rest Harrow," Cherry-lane, Lymm, Cheshire.
Lloyd, Harry, 489, Oldham Road, Failsworth.
Taylor, F., Margaret Nursery, Crews Hill, Enfield, Middlesex.
Eiser, R. H., The Bewdley P. Farm, Heightington, Bewdley, Worcester.
Parsons, C. G., The Cottage, Grange Farm, Chigwell, Essex.
Beecroft, W. W., Wilbraham Utility Poultry Farm, 215, Wilbraham Road, Fallowfield, Manchester.
Whiteside, Mrs. M., Ivy Cottage, Creevy, Lisburn, Ulster.
Rostran, Ed., Mayfield Flat Farm, Cross in Hand, Tunbridge Wells.
Blair Neatby, W., 4, Enstone Road, Charlbury, Oxon.
Ely, Lt.-Col. H., The Bungalow, Iverley, Nr. Stourbridge.
Franklin-Smith, Lt.-Col., J., Moston-by-Backford, Cheshire.
Stonehouse, D. W., Glyn Valley P.F., Glynceiriog, Nr. Wrexham.
Ellswood, H. W., 8, Greenway, Ilminster, Somerset.
Toyne, W., Ashleigh, Swallowbeck, Lincoln.
Betts, W., "Maryville," Carterton, Clanfield, Oxon.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, JANUARY 18th, 1924.

GRAIN AND FEEDING STUFFS.—English wheat is in very short supply and meets a good demand, the average quotation of 10s. 2d. per cwt. showing a further rise of 2d. on the week. There is a fairly active enquiry for home-grown malting barley, while feeding samples are rather scarce, and are in keen request. Both descriptions are dearer, malting averaging 11s. 5d. and feeding 9s. 8d. per cwt. as against 11s. 3d. and 9s. 4d. per cwt., respectively, a week ago. Very small quantities of British oats are available, and the best samples are purchased for seed purposes; a better enquiry now prevails, and whites average 10s. and blacks and greys 8s. 11d. per cwt., or an advance of 2d. and 3d. per cwt., respectively, on the week. Imported cereals are in good request and dearer, feeding barley, especially, being in good demand with supplies rather short. Maize is also offered in only limited quantities, and a good enquiry is experienced at higher prices. Milling offals meet a steady trade, any changes in prices being in an upward direction, while barley meal and maize products are dearer in sympathy with the rise in price of the raw materials.

MILLERS' OFFALS.—Bran (British): Bristol, £8 7s.; Hull, £7 7s.; Liverpool, £7 10s.; London, £7 17s. Broad Bran: Bristol, £9 15s.; Hull, £8 17s.; London, £8 12s. Fine Middlings (Imported): Hull, £8 15s.; London, £10 5s. Coarse Middlings (British): Bristol, £9 2s.; Liverpool, £8 5s.; London, £9 7s. Pollards (Imported): Bristol, £8 5s.; London, £8 5s. Rice Bran: Bristol, £7 15s.; Liverpool, £7 5s. MEAL.—Barley Meal: Bristol, £11; Hull, £10 8s.; London, £11 7s. Maize Meal: Bristol, £11 5s.; Hull, £10 13s.; Liverpool, £10 5s.; London, £11 5s. Maize Meal (S. African): Liverpool, £10; London, £10 5s. Maize Germ Meal: Bristol, £10 10s.; Hull, £10 8s.; London, £10 7s. Maize Gluten Feed: Bristol, £10 15s.; London, £9 2s.

EGGS AND DEAD POULTRY.

More English eggs are offered, and London prices show a reduction, while Irish are more freely offered and cheaper. Imported eggs are also more plentiful and cheaper, trade being fair. Trade for poultry is slow at Bristol and Liverpool with a tendency to lower prices, but a good demand exists at London, and Surrey fowls and turkeys are dearer.

Week-end prices—Eggs (per 120): British, 28s., 25s.; Irish, 27s., 24s.; Danish, 31s., 30s.; Dutch, 30s., 28s.; French, 28s., 27s.; Egyptian, 13s. 6d., 12s. 6d.; Italian, 25s., 23s.

Dead Poultry (per lb): Fowls—Surrey, 1s. 9d., 1s. 6d.; Irish, 1s. 4d., 1s. 2d.; Others, 1s. 3d., 1s. 0d. Ducks, 1s. 6d., 1s. 4d. Geese, 1s. 2d., 1s. 0d. Turkeys, 1s. 8d., 1s. 5d.

EGGS.

Per Doz.—Ashford: First, 2s. 6d.; Second, 2s. 4d. Birmingham: First, 2s. 6d.; Second, 2s. 4¾d. Carlisle: First, 2s. 9d. Chelmsford: First, 2s. 10¼d.; Second, 2s. 7¼d. Denbigh: First, 2s. 4d.; Second, 2s. 3d. Derby: First, 2s. 6d. Dorchester: First, 2s. 4¼d. Exeter: First, 2s. 6d. Guildford: First, 2s. 4d.; Second, 2s. 11d. Hereford: First, 2s. 0d. Hull: First, 1s. 6d. Ipswich: First, 2s. 9d.; Second, 2s. 6d. King's Lynn: First, 2s. 6d.; Second, 2s. 3d. Lincoln: First, 2s. 6d. Llandilo: First, 2s. 3d. Newport (Mon.): First, 2s. 6d.; Second, 2s. 4d. Norwich: First, 2s. 4d. Oswestry: First, 2s. 5d.; Second, 2s. 3d. Penzance: First, 2s. 1d.; Second, 2s. 0d. Salisbury: First, 2s. 6d.; Second, 2s. 4½d. Shrewsbury: First, 2s. 3d.; Second, 2s. 1d. Skipton: First, 2s. 3d. Truro: First, 2s. 1d. York: First, 2s. 8d.; Second, 2s. 6d.

FOWLS.

Per lb.—Birmingham: First, 1s. 4d.; Second, 9d. Derby: First, *5s. 3d.; Second, *3s. 0d. Exeter: First, 1s. 7d. Hereford: First, 1s. 4d.; Second, 1s. 2d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Lincoln: First, *5s. 6d.; Second, *3s. 6d. Llandilo: First, 1s. 8d.; Second, 1s. 6d. Newport (Mon.): First, 1s. 5d.; Second, 1s. 2d. Shrewsbury: First, 1s. 5d.; Second, 1s. 3d. Skipton: First, 1s. 7d.; Second, 1s. 5d. Truro: First, 1s. 2d. York: First, *5s. 3d.; Second, *4s. 0d.

DUCKS.

Per lb.—Birmingham: First, 1s. 2d.; Second, 1s. 0d. Derby: Fisrt, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 6d.; Second, 1s. 3d. Hereford: First, 1s. 3d. Llandilo: First, 1s. 8d.; Second, 1s. 6d. Newport (Mon.): First, 1s. 3d. Shrewsbury: First, 1s. 6d.; Second, 1s. 4d. Skipton: First, 1s. 6d.; Second, 1s. 4d. York: First, *6s. 0d.; Second, *5s. 0d.

* Per Head.

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DAY-OLD CHICKS „ 1/6

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Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S E.16, to be counted as eight words.

Advertisements must reach this office
FIRST POST FRIDAYS
for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

PULLETS.

FOR SALE.

White Leghorn Pullets, April, 1923, Cam-Barron, 11s. 6d. each; six, 65s.; 70, £35. Also Ten White Leghorn 1922 Hens, 10s. each.—Leake, Llanyre, Llandrindod Wells.

R.I. Red, Anconas, W. Leghorns; 12s. 6d.-21s. each; related Gold Medal Pens. — Berney, W. Common, Harpenden.

1923 Pullets. White Leghorns, White Wyandottes, Rhode Island Reds, and Light Sussex, March and April hatched. All trap-nested, and pedigree supplied; 10s. 6d. and 1[illegible]s. each, carriage paid.—G. B. Tootall, Thorncliffe Poultry Farm, Barrow-in-Furness.

Light Sussex, February hatched Pullets, from Thomson's direct, gold medal competition strain; from 12s. 6d.—Mathison, Esless Hall, Wrexham.

Five lovely Ancona Pullets, February, 1923, hatched (laying), with vigorous unrelated cockerel, Darracott's strain; £3. — Stephens' Kennels, Cranford, Middlesex.

PRIZE-WINNING WHITE LEGHORNS.

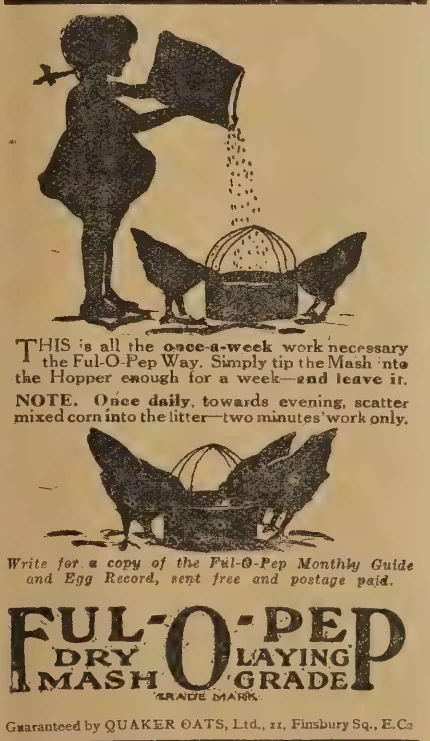
1st, New Barnet; 6th, Tottenham; h.c., Yeovil; c, Crystal Palace, etc. Sisters and dams to above for sale. Also few Cockerels from 240-egg hens. — Munro-Spencer, Ropley.

PEDIGREE PULLETS.

White Wyandotte, from L2 hens; high pedigree sire; 10s. each. — Wheatley, S.P.B.A., Barnwood, Gloucester.

1923 PULLETS. 1923.

For immediate disposal, White Leghorns (Snowden's), February hatched, Light Light Sussex (Franklyn's), April hatched, Rhode Islands (Golden's), April hatched, White Wyandottes (Cam-Barron strain), April hatched. All laying, or on point. Full-grown Pullets from selected stock. Guaranteed healthy. 8s. 6d. each, £5 per dozen; £20, fifty. All carriage paid. Satisfaction, or cash returned.—G. W. Bell, "Lord of the Manor," St. Lawrence, Thanet.



THIS is all the **once-a-week** work necessary the Ful-O-Pep Way. Simply tip the Mash into the Hopper enough for a week—**and leave it.**

NOTE. Once daily, towards evening, scatter mixed corn into the litter—two minutes' work only.

Write for a copy of the Ful-O-Pep Monthly Guide and Egg Record, sent free and postage paid.

FUL-O-PEP DRY MASH LAYING GRADE
TRADE MARK

Guaranteed by QUAKER OATS, Ltd., 11, Finsbury Sq., E.C2

PULLETS.

FOR SALE.

Barnevelders. Five Pullets (Brodie's) and Cockerel (de Brienen); £4, carriage paid. Sittings, 7s. 6d.—Las-Casas, Elliscombe, Wincanton.

Black Leghorn Pullets for Sale (Burn-Murdoch); 1923 hatched; 10s. each. — M. Cartner, Moss House, Justice Town, Carlisle.

L. Sussex Pullets, April, 1923 (Rothschild), started laying; not culls; 8s. 6d. each. Also 1922 L. Sussex Hens; through moult; laying; 5s. 6d. each. Carriage paid on six. Approval.—A. J. Allsop, M.S.P.B.A., Kirby Hall, P.F., Ouseburn, Yorks.

For Sale, Nine Pure-bred Light Sussex and Nine White Leghorns; very good strains.—Apply, Poultryman, High Beech, Hollington, St. Leonard's.

Forty magnificent Light Sussex Pullets, laying; February, 1923, hatched. Cook's Strain. Make splendid breeding pens. Room wanted. 10s. 6d. each; approval.—Stanley Cooper, Fulbrooks, Bridport.

Six doz. White Leghorn Pullets, March and April hatched, 1923 (Frank Snowden's), 268 strain; 8s. 6d. each; take lot. Four unrelated cockerels, 15s. 6d. each. Two R.I.R. Cockerels, Registered, Boucher's, 30s. each.—Greeno, Wickford.

WHITE LEGHORNS

Eight March-hatched Pullets, Phillips' Old Castle Strain, sired by a son of the famous "Lady Old Castle." What offers? —Mrs. Guy Gibbs, Barrow Court, Near Bristol.

ERNEST ORR,

Brooklands, Redhill, Surrey. White Leghorns and R.I. Reds. Egg production and breed type. Pullets from flock awarded 1st and gold medal for best utility light breed at Crystal Palace, 1923. 1922 Hens, 8s.; Pullets, 10s. 6d.; Eggs, 7s. 6d. D.O.C. All by L2 stock. Inspection invited.

BLACK LA BRESSE.

Eight March-hatched Pullets, Longueville Strain: laying well. What offers? — Mrs. Guy Gibbs, Barrow Court, Near Bristol.

WHITE LA BRESSE.

A few excellent Pullets for Sale; laying large eggs.—Captain Heseltine, Ropley.

UTILITY MINORCAS.

Ten excellent Pullets for Sale, from very heavy layers.—Captain Heseltine, Ropley.

NATIONAL LAYING TRIALS. 2nd PLACE FOR FIRST MONTH.

Major Robert Lethbridge, Broomhill, Tiverton, offers pedigree utility January, February, 1923, Rhode Island Red Pullets, suitable for breeding in full lay, sisters and pen sisters of his National Pen birds, from 10s. each. Particulars and Mating List on request; vide under Cockerels.

SPECIAL OFFER.

Owing to the ground being required for chicken rearing, I have a limited number of the following 1923 Pullets to offer, all in full lay. all birds sent on approval, and carriage paid on six or more:—Barnevelders, Buff Rocks, Australian Black Orpingtons, Rhode Island Reds, White Leghorns, from 15s. each.—Particulars from O. M. P. Proctor, S.P.B.A., B.B.C., A.O.C., Delamere, Kirby Muxloe, near Leicester.

COCKS AND COCKERELS.

FOR SALE.

W. Leghorns, dams 235-256; sire, Barron's 258; dam, 275; 30s.—J. Clayton, Naylors Road, Gateacre, Liverpool.

636.5
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Wednesday, January 30th, 1924.

EGGS

THE OFFICIAL ORGAN OF THE SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

Registered at the G.P.O. as a Newspaper.
Vol. IX. No. 5. Copyright.

Edited by Tom Newman.
Price TWOPENCE.

Twelve Months Post Free 12/8
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Three Months ,, ,, 3/3

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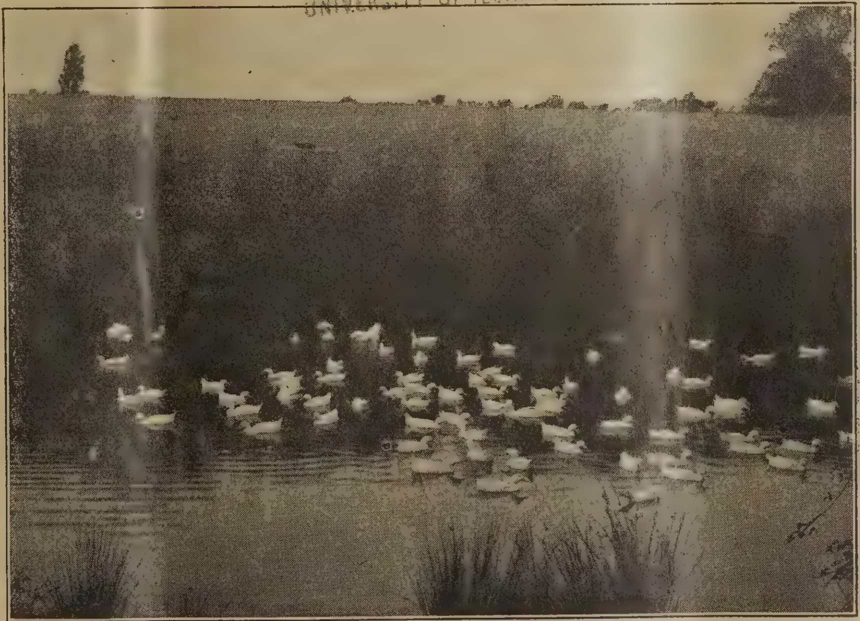

Aylesbury Ducks. Pullets on free range on stubble at Mrs. Harry Kent's 110-acre Farm at Court Lodge, Hooe, nr. Battle, Sussex.

Telegram: "PREFER," St. Neots.
Telephone: ST. NEOTS 65.

The Farm of Distinction.

"The World's Largest Poultry House in Course of Construction."

If you want the best value in hatching eggs and day-old chicks in this country, book your orders with us to-day. As we are extending very largely, we shall not have many to spare. We want, however, to keep in touch with our friends, and, therefore, offer a few of each from the strains we mentioned in previous announcements: White Leghorns, Black Leghorns, Anconas, White Wyandottes, and Rhode Island Reds. 10/6 per doz., unfertiles replaced or 15 to the setting, and no replacements. Chicks double.

Terms, strictly cash with order, and boxes must be returned, or will be charged for.

Deliveries any time after January 15th. 1924. Orders in strict rotation.

Vacancy for Premium Pupil.

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MANAGER,
THE WHITE HOUSE P.F., —— ST. NEOTS, HUNTS.

The Outcome of Many Years Experience and Study.

—The—

HIGHEST PERCENTAGE

OF STRONG AND STURDY CHICKS
Can be raised by using

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STANDS PRE-EMINENT

GROUND DRAUGHTS ELIMINATED.
VENTILATION STUDIED.

Made in Two Sizes. Guaranteed Capacity.
175 Chick Size: £5 10s. 0d.
75 Chick Size: £4 10s. 0d.
Carriage forward.

Call or write for particulars

E.D.G. APPLIANCE Co., Ltd.
33, Rosebery Avenue, London, E.C.1.

EXTENSIBLE UNIT BUILDINGS

Mean Increased Egg Production.

A PRIME factor in Egg Production is the health of laying stock.

GOOD HOUSING is quite as important as Good Feeding.

12 units: 60ft. x 15ft. Type L, 6ft. 6 x 8ft. high. One of numerous houses supplied to R. A. Fawsett, Esq., Radnor Valley Poultry Farm, New Radnor.

EXTENSIBLE UNIT HOUSES MAINTAIN HEALTH.

Send for Illustrated Descriptive Brochure on the subject, giving full particulars.

W. H. COLT, M.N.U.P.S., M.S.P.B.A., Bethersden, nr. Ashford, Kent.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, January 30th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

THE POULTRY INDUSTRY IN 1923.

By EDWARD BROWN, F.L.S., Hon. Sec., National Poultry Council.

The year which has just ended marks the opening of a new era in connection with poultry breeding and production, in that it has seen a commencement made in connection with the scheme for a National Poultry Institute and Research Stations. The £6,500 which the Poultry Industry had to provide in order to secure the grant offered by the Government of £50,000 for this purpose has been raised, except about £500. That must be found to complete the scheme. However, the Ministry of Agriculture and Fisheries decided that a beginning could be made. The Breeding Research Station and that for Nutrition at Cambridge University, and the Disease Research Station at Addlestone, Surrey, have begun operations. Plans are being considered for the Institute itself in connection with Harper-Adams' Agricultural College, Newport, Salop, and the Egg Breeding Station at Reaseheath, Cheshire, and the Table Poultry Station at Wye College, Kent. For a long time Great Britain has lamentably lagged behind Canada and the United States in respect to poultry instruction and investigation. It may now be hoped that the ground lost will be regained. Such achievement and the raising of the head of the Poultry Branch of the Ministry of Agriculture to the status of Poultry Commissioner mark a year that will be notable.

Although prices for produce have fallen, as shown by the figures given below, and profits are not to great as in the preceding years, due to many causes, of which unemployment of multitudes of workers, and decline in purchasing power, may be named, the poultry industry has come through the year very well from the fact that costs of production have also fallen to an equal degree. We are now coming to normality in place of inflation. Abundance of evidence is available that farmers have found poultry the most profitable branch of their operations. Poultry farmers, whether breeders or producers of eggs and poultry, have obtained satisfactory returns and a constant demand. Further signs are to be found in the growing membership of poultry societies, in some cases very large, and in the resumption of poultry exhibitions, not only in the number of these, but the great increase of exhibits and the quality of the stock. The lessons of the war period appear to have been learned in that there is less exaggeration among exhibition poultry than in former years. In addition, many shows devote attention to what are called utility classes, though these are not in all cases satisfactory. It may, however, only be a sign of transition. Laying trials are more popular than ever, and the number of these contests is increasing.

On the other hand, the year under review has emphasised that many problems remain to be solved. Complaints are very rife that some of the stock, which has been continuously bred for a high average of egg production, is showing loss of size and vigour of body, and are producing smaller eggs, those which are under the market requirements. In that respect numbers of eggs may be too dearly bought. Some breeders are suggesting that the standard sizes of eggs should be reduced. That is folly and would be fatal. The business of producers is to supply what is most in demand and for which the best prices will be paid, and cannot hope to compel the consumers to sacrifice to their fads. If any change is made the standards for eggs should be increased. A further sign is found in the heavy losses from embryonic and chick mortality—in itself a proof of parental weakness, if not actual infection. These and the prevalence of disease among poultry indicate the urgent need for investigation and research. A question has lately been very prominent, namely, how far the outbreaks of foot-and-mouth disease may affect poultry, and how this is spread.

The National Poultry Council has been very active during the year, and is now recognised as voicing the industry. It was responsible for raising the money for the National Poultry Institute, in which respect it has been splendidly supported by the co-operation of poultry and other societies, and by the leading poultry journals. It has sought to defend the interests of poultry-keepers, and to, in some cases, defend them against themselves, in many ways, one of which was the marking of imported eggs, which many believe would be to their advantage and that of the consumer. That, however, had not been carried when Parliament was dissolved in November; by preventing unfair, often illegal, action on the part of sanitary and other authorities; by the National Poultry Examination Board, which is raising poultry teaching to a higher status, and securing for instructors more adequate salaries, as well as advocating these appointments in counties where such were not already made; by promoting a Legal Defence Fund to defend poultry farmers against unjust assessments for income-tax and local rates denying to them the concessions made to general farmers; by obtaining adequate compensation where poultry are killed by foxes; and by securing more equitable rates from the railway companies.

Thus the year has been one of constructive progress, the very difficulties of which have stimulated the self-reliance of poultry-keepers, which is their greatest asset, as indicated by the efforts made in several districts to equalise supply by preserving eggs from the period of maximum production to the seasons of scarcity, as well as by an increasing output in autumn and winter. It is that spirit which is here referred to that will make for future success. As will be seen below imports have increased. That need give no concern. We have one of the finest markets in the world at our doors. Present consumption is less than 100 eggs per unit of population per annum, and fowls less than one fowl per annum. These could easily be doubled, if not trebled, with advantage to producers and the nation at large.

The Trade and Navigation Return for 1923, just issued, represent the great change which has come about by the establishment of the Irish Free State, as the supplies from Southern Ireland are now included in British imports, and, I assume, such as pass thence into Northern Ireland from over the boundary line, as it is announced that from April 1st, 1923, these accounts include the trade of Great Britain and Northern Ireland with the Irish Free State. As a result comparisons with previous years are made difficult and would not be altogether reliable. This is the twenty-ninth of these annual summaries which it has been my privilege to make. In the future we shall have to make 1923 the basis of comparisons. As will be seen by the subjoined tables the figures for Southern Ireland are not given separately. It may be anticipated that in future such will be published.

IMPORTS OF EGGS IN SHELL INTO GREAT BRITAIN AND NORTHERN IRELAND, 1923.

From	Quantities. Gt. hhds.	Values. £
Denmark	6,757,300	5,486,324
Netherlands	1,435,392	1,075,489
France	1,337,724	782,771
Italy	415,350	307,258
Yugo-Slavia	419,844	244,998
Egypt	1,209,332	628,604
China	1,113,024	642,936
United States of America	242,441	200,140
Canada	377,759	313,569
Other Countries	6,740,522	4,126,694
Totals	20,048,683	£12,819,792

It is evident that, if the Irish Free State is included in "Other Countries," these figures are incomplete, unless there has been a huge decline in supplies from that country. With respect to quantities in 1923, as compared with 1922, Denmark increased by more than 20 per cent., the Netherlands more than doubled supplies, France had increased her shipments fourfold, Italy had increased by one-third, Yugo-Slavia decreased by about 10 per cent., Egypt and China had slightly decreased, and there was a large drop in shipments from Canada and the United States, the latter undoubtedly by reason of the exchanges being in their favour. So far as quantities are concerned, if we include the Irish Free State in 1922 (estimate) there was in 1923 a big drop in the amount paid for egg imports.

Below are given the relative values of eggs from each of the countries enumerated, and as comparisons with 1913 must be kept in mind I have included these:—

AVERAGE VALUE OF IMPORTED EGGS PER GT. HHD.

From	1923. s.	 d.	1913. s.	 d.
Denmark	16	2¾	10	9¼
Netherlands	14	11¾	10	0½
France	11	8½	8	3½
Italy	14	9½	9	11½
Yugo-Slavia	11	8	—	
Egypt	10	4¾	7	5
China	11	6½	—	
United States of America	16	6	7	5
Canada	19	9¼	7	5
Other Countries	12	2¾	7	5
General average	12	9¼	9	10½

In connection with the above it is necessary to bear in mind that the period of the year when imports are received determines the average values, which explains the high Canadian record, also that of the United States.

Dried and liquid eggs are evidently increasing in use as seen by the following table. The value has fallen considerably:—

Year.	Quantities. Cwts.	Values. £	Per cwt. s.	 d.
1920	404,321	4,731,435	234	0
1922	373,781	2,347,020	125	6
1923	482,680	2,803,670	116	7

The above figures are after the re-exports have been deducted.

Exports of live poultry, presumably for breeding, are slow in growth, only numbering in 1923 17,532, of a declared value of £13,404, which latter is probably an assumed value. The dead poultry import figures are as under:—

IMPORTS OF DEAD POULTRY INTO GREAT BRITAIN AND NORTHERN IRELAND, 1923.

From	Quantities. Cwts.	Values. £	Per cwt. s.	 d.
France	68,645	508,831	148	3
United States of America	51,973	382,247	147	1
Other countries	194,463	1,132,010	116	5
Totals	315,081	£2,023,088	135	5

From the above must be taken re-exports of 4345 cwt., valued at £27,346. In addition there were exports of British dead poultry of 2,841 cwts., valued at £19,171.

Whilst for reasons already stated it is difficult to make comparisons of 1923 and 1913, it may be stated that the values of imported eggs and poultry, including Irish, in the latter year, amounted to £17,500,000, omitting dried and liquid eggs, the quantities of which were very small, that the average values respectively were:—Eggs, 8s. 10¼d. per gt. hhd., and poultry 68s. 7d. per cwt. Therefore the average values in 1923 were higher in eggs by 3s. 11d., or 44.2 per cent., and poultry 59s. 10d. per cwt., or 88.3 per cent. So far as can be seen from the returns, imports of eggs (inclusive of Irish) were in 1923 28.6 per cent. less than in 1913, and poultry 10 per cent. more in 1923 than in 1913.

The following estimate is made of the consumption (wholesale) values of eggs and poultry in Great Britain and Northern Ireland, less exports and re-exports in 1923:—

Imported produce (including Southern Irish)—		
Eggs in shell	£13,819,792	
Poultry, less re-exports	1,995,742	
Eggs, not in shell, less re-exports	2,803,678	
		£18,619,212
British produce—		
Eggs and poultry, less exports		26,940,000
Total		£45,559,212

The result is arrived at that of eggs and poultry consumed in Great Britain and Northern Ireland during 1923, 59.3 per cent. were of home production, and 40.7 per cent. imported.

20-21, Essex Street, London, W.C.2.

Modern Poultry Feeding.

By TOM NEWMAN.

OIL BEARING SEEDS AND BY-PRODUCTS.

COCOA-NUT MEAL.—This is the residue from the manufacture of oil from the cocoa-nut. I have used it during the war in a wet mash with complete success, and have often wondered that it has not been given more consideration as a foodstuff by poultry-keepers at the present time. A mash of one part cocoa-nut meal, soaked in water for a couple of hours, mixed with four parts middlings, one maize meal and half part fish or meat meal gave excellent results. I have never tried it in dry mash, but there seems no good reason why it should not be used if the price is economic. It is produced by the "old" and "new" process. In the former the oil is extracted by pressure, in the latter naptha is used. The "old" is higher in fat content than the "new," and slightly lower in protein. In hot weather, unless kept perfectly dry, it has a tendency to turn rancid.

Analysis: Protein 22.1; Carbohydrates, 47.9; Fibre, 11.0; Fats, 8.4; Ash, 6.0.

PALM NUT KERNEL MEAL.—This was largely used by poultry-keepers during the war, but it was a question of Hobson's choice, and it cannot be said that it was an unqualified success. It is unpalatable; the birds did not take kindly to it; it was apt to cause severe scouring. It was said to have a feeding value equal to fine sharps, but I do not think, judging by experience, that it is so high. It should, however, be stated that it was the chemically extracted which caused the trouble; that was the conclusion we were forced to at the time. Like cocoa-nut meal, it is apt to turn rancid, if not carefully stored. One would not recommend it as a poultry food at the present time unless it could be bought very cheaply.

The analysis is: Protein, 16.8; Carbohydrates, 35.0; Fibre, 24; Ash, 4.3; Fat, 9.5. The high fibre content is explained by the presence of particles of the husk.

LINSEED MEAL.—Valuable as linseed meal undoubtedly is, the cost is prohibitive to poultry-keepers. Used judiciously, nothing will so quickly improve the bodily condition of the birds, and it is especially valuable with pullets which have neck moulted, with moulting hens, and birds which from any cause have experienced a check. Its protein and oil content are both high, it is slightly laxative, and has a very soothing effect on the intestinal tract, it is valuable to young growing stock, because it is rich in calcium and fairly well off as to its phosphorous content. A comparison of soya bean meal and linseed meal is favourable to the latter, but the cost of the former is so much less that, in combination with other suitable constituents, it could be used as a substitute. Four per cent. linseed meal in the properly constituted mash is sufficient.

New-process linseed meal carries 3 per cent. more crude protein than old-process meal, but only contains 2,9 per cent. of oil or fat. The former is not so palatable as the latter, neither has it such a beneficial laxative effect.

Analysis: Protein, 33.9; Carbohydrates, 35.3; Fat, 7.5; Fibre, 8.4; Ash, 5.6.

SUNFLOWER SEEDS are recommended for poultry during the moult. They are very rich in oil, and the protein content is high. But we can achieve our object without their use, and the high fibre content and its nature somewhat neutralises their value.

Analysis: Protein, 14.2. Carbohydrates, 14.5, Fat and Oil, 32.3; Fibre, 28.1; Ash, 3.4.

THE WELLINGHAM EXPERIMENTS.

The chicken feeding experiments at Wellingham will begin on the 21st, the rations being as published in a recent issue of "Eggs." A second series will begin later, with the object of testing value of certain mineral constituents, as an addition to the ration. The fullest particulars will be published shortly. The pullets, which are being used to test the comparative value of animal and vegetable protein, look in the pink of condition, and are laying well. This experiment is but a preliminary canter, and I am hoping, when we have sufficient data, that we shall be in a position to start another series of experiments in feeding for egg production, which will enable us to use a greater variety of foods, so that when prices begin to rise we may be able to switch off on to something else, and so tend to steady them. We are too cramped in our choice of foods at present. There is a big field for investigation, and the Council of the S.P.B.A. are keen on doing some work in this direction.

MAIZE GLUTEN FEED.

I have repeatedly warned by readers as to the risks incurred from using Maize Gluten Feed. I now advise them definitely NOT to use it. In November a well-known poultry farmer wrote to me saying that his pullets had stopped laying, many of them had gone into a neck moult, and all had their combs shrivelled up; generally they were moping and looked miserable. I attributed it to the Gluten Feed, and a week ago I got the following letter from him:—

> "I wish to thank you for the advice you gave me in November. Of course, I know that you have repeatedly said in "Eggs" that gluten feed was causing serious trouble, and advised that it should not be used; but I was so pig-headed and sure My gluten was above suspicion, that I never seriously questioned it until you made it a personal matter. Then, however, I acted at once, and withdrew a ton and a half of mixed mash containing gluten, and mixed up a new lot with a good sample of maize meal. Result; In sixteen days the egg output was trebled; in another 16 it was actually ten times what it was when I wrote you. It seemed to have almost a magical effect on the moulting pullets, as they came back into condition with the most surprising rapidity. I I did nothing else bar add 4 per cent. linseed cake meal at your suggestion. In order to make my gratitude more practical, I enclose cheque of two guineas for the National Poultry Council."

What is the real cause of this trouble I am unable to say. It has only occurred within the last two or three years; when I first recommended it, the feed was not so lavishly adulterated with the offals as it is now, although it always contained some; but I never had a report of any ill-effects from its use. Whether it is due to fermentation caused by its being stored when in a moist condition, or whether it is due to the method of extraction, I cannot say, at any rate the risk is there, and it is too great to be run. Apart from this, the average sample of gluten feed to-day is not an economic food, owing to the high percentage of maize offals it contains.

In reply to "Quandary," if he refers again to the issue of "Eggs," December 19th, he will see the mistake is his and not mine. In December 19th issue I dealt with the proposed *Chicken-Rearing* Experiments. On December 12th with the present experiments with the pullets. He has confused the two.

POISONING.

By Capt. H. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

(Continued from Page 62.)

What is a lethal dose of common salt for a fowl? Experiments recorded by well-known experts have resulted in quite a wide margin of opinion on this point. Kaupp says 25 grains per lb. of live weight is sufficient to produce death in birds. Ward and Gallagher put the lethal dose at 2½ drams, which comes out at something like 50 grains to a bird of average weight, and further state that doses of one and three-quarters, and one and a quarter, produced no effect. My own tests showed fowls to be very much more susceptible in this country, but the salt was given in a concentrated solution and when the crop was empty, and at such times much more effect would be produced. When there is a bulk of ingesta in any animals the toxic substance is to a large extent lost in that material. This has been long recognised in veterinary practice, and the ox is given on an average a third more of any active drug than the horse, with his smaller stomach. A crop full of mash would take up much of the salt, and the glandular stomach and gizzard would do the same. The latter with its leathery lining membrane does not show much effect in poisoned birds, unless the dose has been so large as to make it peel. The potash and sodium salts contained in foods would seem to supply all a bird needs, and this much is certain, that salt may easily prove injurious, and its intentional admixture with foods is unnecessary. It is, of course, one of the objections to fish meal that the proportion of salt is too high, and should not be fed in anything but small quantities and much diluted by other things.

Bismuth subnitrate. Those who have treated scour, other than bacillary white diarrhoea, with chalk, may safely add a few grains of bismuth, as it has been found that as much as a quarter of an ounce given to an adult fowl had no apparent effect. This does not imply that it fails to act as an astringent, as in human and other species. Among the commonest drugs one wishes to prescribe for fowls may be mentioned the sulphates of iron and copper; sometimes that of zinc, but in very small doses. A member of this Association, whose farm I visited, had birds for which I wrote a prescription for pills containing one grain each of sulphate of copper. The chemist refused to dispense so "dangerous" a dose. He probably referred to the British Pharmacopæia, and seeing that the official dose for a man is given as "one quarter to two grains," reasoned that a fowl weighing but a fiftieth of the owner's avoirdupois could not be given a maximum human dose. Now we turn to Gallagher again and find that he experimented on four birds, giving the first 20 grains, which caused its death in three days. To two others he gave 15 grains each; result, one died, and in the other "no effect was apparent." Five grains was given to others, and no effect could be seen. Here, then, we have it proved that two and a half times as much sulphate of copper can be taken by a bird weighing three pounds than the maximum dose for a man weighing 150 lbs. or more. My one grain dose was almost a homeopathic one by comparison. Sulphate of copper is one of the best of remedies against certain forms of roup and of fungus infection (aspergillosis), and it is a grievous thing that dispensing chemists, whose knowledge of human posology is so good and who frequently detect a prescriber's error, should be wholly ignorant of doses for birds, and we might add for other animals, as we have had much trouble in this matter, and a letter from the Editor of the "Pharmaceutical Journal" is now lying before me, in which I am asked to lighten their darkness. I thought I had done something for them in writing "Veterinary Counter Practice," which has had a good sale for many years, but an avian posological table has not yet been written. Who shall write it in our present state of ignorance? Those who attempt to prescribe for birds must do so almost entirely on their own experience, as only the most recent book by American authors, to which I gratefully acknowledge some of the facts stated in these articles, can be relied on. Most of the recipes in poultry books have been written by amateurs who come under Voltaire's description of the physicians of his day, who "prescribed drugs of which they knew little for bodies of which they knew less,' but they are for the most part like Chipping porridge, and if they do no good can scarcely be suspected of doing harm. There are one or two exceptions perhaps where individuals become obsessed, as in the carbolic remedy previously alluded to, and in the matter of giving permanganate of potash. I am sure that I have had young chicken sent for examination that have died from being supplied only with water containing this substance, and too much of it. The peculiarity of its rapid decolouration in the presence of other things in water deceives the mixers, and they add more than they intend, or, in their great faith, give more than advised, on the principle that if one pill did the old lady so much good, a box full should effect a speedy cure. Referring again to Ward and Gallagher, we find 30 grains or half a teaspoonful to be a lethal dose. The post-mortem examination revealed "the dependant portion of the crop charred and softened"; "apparently the mucous membrane was eaten through." It was finding the vaginal membranes of cows thus tortured that first put me on to the risks of giving this believed-to-be innocent substance in concentrated, or, more properly speaking, insufficiently diluted, state. Fifteen grains so diluted as to provide three and one third per cent. did not affect two fowls to which it was given. If an adult fowl is thus seriously injured, and death is caused without the drug getting any further than the crop, it will be suspected that very young chicken, whose drinking water is poisoned daily with enough permanganate to give much colour to it, will be easily destroyed without a thought of the cause. If water is to be made germ-free, boiling is the remedy, not habitual drugging. If any reader is wedded to this substance under discussion, he is respectfully asked to measure exactly the quantity given and to "err on the safe side."

Some Fruit Growing Notes to Help Poultry Keepers.

By F. W. WHEELER, F.R.H.S.

WINTER WASHING.—The second of these two words will naturally call to the poultry-keeper's mind another word that is continually being pushed in front of his face, and wisely, namely, the need of "cleanliness," and as my readers will quickly grasp the fact that it is equally important for successful fruit growing, I shall not rub it in further, but take it for granted that he only wishes for some tips to help him in the best and cheapest way to carry out his desires.

On the other hand, the first word calls for a few introductory remarks, for our fruit trees are more especially benefited by spraying at certain times and with certain chemicals, and the winter cleansing requires its work to be done at the right time; I might almost say at the right moment, for we have to study, not only the weather, but the season, and with some of the sprays they must be applied while the buds are dormant (although the later we can leave this before the buds actually burst the better).

I said "study weather," for we cannot spray well on windy days, and the calmer it is the more comfortable we shall find it for working, and likewise there will be less waste of chemicals. Again we should seize the opportunities that come of any spells of fine days that follow one another; for then the washes have a good chance of acting, and are not weakened (or almost washed off) by rain. February and March are the best months for this winter washing.

Poultry-keepers and those not growing fruit on a large scale will undoubtedly find it is much better and cheaper to buy their insecticides from one of the many experienced chemical manufacturers who have given careful study to the composition of spraying materials.

The winter washes are chiefly employed for destroying and preventing the spread of fungoid diseases, and they likewise protect the buds from the ravages of wild birds; they also act indirectly on the insect pests, for in destroying the moss, lichen, and in removing the dead bark from the trees it reduces the number of lurking places where insects can harbour their eggs; and, again, although all the winter washes do not actually destroy the eggs of all insects, many (especially those containing paraffin) will kill a great number, and also the chrysalids of caterpillars. Even when the washes do not kill they prevent hatching out because of the coating of spray material covering and choking them.

Caustic Soda, Lime, Copper Sulphate, and Soft Soap are the chief ingredients used, but as I have already said, we cannot do better than buy some of the good mixtures now on the market, and ready for use, with full instructions as to correct strength for application at the different seasons.

On the whole spraying is rather more of a curative than a preventative measure, and when our trees are clean, it will not be found necessary to apply the caustic winter washes every year. It is the continually neglected trees that require afterwards the drastic and continual washing to get right again.

In districts where there is much moisture in the atmosphere, and near the sea coast, a more frequent application of the lime sulphur washes is very beneficial, as it will be noticed that the barks get very green in appearance. Gooseberry and currant bushes in particular seem to require it to keep them clean and healthy.

Perhaps in your country walks you have often noticed that some of the orchards have the old tree trunks covered with a thick coating of lime (applied with a brush). Personally I do not do this, as the process is not a practical one to cover all the small branches and twigs, which equally require attention, and only the mist-sprayers can effectively deal with the whole tree; in doing the top parts the lower branches and trunks can be quickly and thoroughly done.

Just a slight warning as to care when spraying not to get the caustic washes on the face and hands; but, unless working on a big scale, I find that there seems little risk of harm, especially if working on calm days. A basin of vinegar and water will be found handy to counteract any possible ill-effects.

I want to mention, in passing, that we undo much of the good of our spraying if we leave our prunings, or old wood with the spores of fungoid diseases on them, lying about. These should always be carefully collected and burnt; also be particular to remove all shrivelled fruit (left hanging on the trees) that you will notice either while spraying or when pruning, and do not throw them down on the ground to spread trouble all around.

Several experiments have been made with spraying with dry powders, and good results obtained by this newer process. There is no doubt that there will be many advantages if it can be carried far enough, and to fully cover fruit tree work. New methods are quickly taken up, but we shall undoubtedly hear more about it in due course.

I should certainly like to be able to do away with the moving of the water machines over heavy and wet ground, and the powder spraying knapsacks will partly meet the case.

The greatest difficulty seems to be in making sure the powder adheres to the trees without much waste of chemicals; and the need of working in wet or damp weather is almost a necessity. One can quite understand that it can be applied most satisfactorily with such low-growing crops as strawberries and potatoes, but I must not enlarge on these notes now but return to the subject another day.

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

HANDLING AND THE GLOUCESTER LAYING TEST.

I have received the following interesting letter from Mr. L. G. Price. The point he makes as to the period at which the birds are handled is a valuable one. It will be noted that the coarse heads were an indication which Mr. Price did not fail to observe :—

Dear Mr. Newman,—In the issue of "Eggs," dated January 2nd, you passed comments on the Gloucestershire Laying Test, which is carried out under my supervision. Re the point you raised—how did birds with the low records handle?

Dealing firstly with the pen of Buff Orpingtons which had the lowest record for a pen. There is no doubt that at the commencement of the Test the pen handled badly, and were particularly coarse about the head; when in lay the depth between the breast and pelvis bones was on average five fingers (3¾ ins.), so that if the Handling Test had been applied at this period (as many understand it) these birds would have been described as five-finger birds and thought to be good layers. Therefore the would-be handler must learn that there is more in handling than mere depth.

Dealing with other individual birds that put up low records, some handled very well, others badly. Those that handled well but put up low records could be classed as follows:—

Moulted and rested for a considerable period or suffered with some internal trouble; but there were some birds which handled well and still paid badly. Had it been possible to have killed these birds and examined them something may have been found that would have explained the low records, while, on the other hand, one may have been no wiser after the post-mortem; but, generally speaking, the birds that handle well put up good records. And dealing with this point each year, I handle and grade thousands for the poultry-keeper at home—also at shows.

Re the Farmer—I always explain that trap-nesting should always be placed before the handling system, when it is possible to carry out same.

At shows where I judge I ask secretaries to put up on the pens after judging, the trap-nest records, where owners have sent same—this is certainly a check on the judging, and should one place low record birds in the money it would show the public the value of any judge's opinion of their birds.

Type is much easier to obtain than good records. In coloured breeds good records and colour are hard to combine (on average).

No doubt you frequently receive comments on Utility Shows. Can you not help to improve them, particularly from the point of view of the exhibitor?

Many so-called judges are judging at these shows who have never trap-nested birds, and yet pick out other people's birds to win in laying competitions, but have never won a laying competition, or even competed, and in many cases paid few and small, if any, corn bills.

I note in a contemporary that it is suggested that a meeting be called at Manchester to form a standard for Utility and Exhibition birds. May the standard come from those that have trap-nested some years, also won laying competitions—then we shall have one that is practical—and may there also be a standard for judges.

THE BIRMINGHAM FESTIVAL.

Although I understand that the attendance fell below expectation, the Birmingham Festival was in other respects a great success. Those who are responsible for the organisation do everything that is possible to make it interesting and attractive to visitors. The Bingley Hall lends itself to a good show; one can see all the exhibits in a good light without either craning your neck or breaking your back. The exhibits, too, were on the whole a good lot, although some of our utility breeders want a little education in the art of penning their birds. I was interested to see such a nice lot of Buff Leghorns; One hears very little of this breed, but at Birmingham they attracted a lot of attention, and enquiries were numerous. Mr. Bacon showed me some of the eggs from his birds, and they weighed a good 2½ozs., and he assured me they were not selected. There is a good enquiry for the Buff Rock, I understand, and this grand old breed seems to be coming into its own. The feature of the show was the lectures each day. These were well attended, Mr. A. H. Brownson, Mr. Will Hooley, Mr. L. G. Price, Mr. Powell-Owen, Mr. E. J. Davey, Mr. Harold Marshall, Mr. Mark Frazer, Mr. Clem Watson, and Mr. Albert brain, all gave their services; while Mr. Stanley Street-Porter, the President of the National Poultry Council, was due on the Saturday to open the festival on that day, and announce the results in the Mammoth Subscription Prize Fund Scheme. Mr. Broughall, the Chairman, will conclude the proceedings with a talk on " The Value of the Festival." One interesting feature was a competition for the Juniors; prizes were given for the best essays on poultry-keeping. The first prize was awarded to a little girl of nine for a really capital effort. The festival must have a great educational value, I think—at any rate, Mr. Broughall, the Chairman, the Secretary, Mr. A. H. Brain, and their colleagues, have made a splendid effort to make it so.

To avoid delay Advertisements should be addressed to the Advertisement Manager, " Eggs," 94, Farncombe Street, London, S.E.16.

THE EGGOMETER.

One thing that interested me was the "Eggometer." This does not tell the sex, nor pretend to tell the sex, but it measures the amount of solid matter in the egg, accurately it is claimed. By means of a float it calculates the specific gravity of the egg, and this is indicated at a glance to the operator. We are told that an egg of good hatching power would register up to 80, while one of poor hatching power would not register more than 60. The value of it is then obvious, as it would prevent our incubating unhatchable eggs, and perhaps hatching unrearable chicks. I must not, however, express an opinion as I have not tested it, only it seems to me to be a fairly sound proposition, as we know that the more hatchable egg has the greater density, and I have been for some time interested in the question of the fat content of the yolk from a nutritional point of view, as I have long held the belief that it has a big effect on the hatchability of the egg. Some day, if the S.P.B.A. continues its experiments in nutrition, I shall hope to test my theory. It is known that the mean weight of the egg is greatest at the beginning of February, and that later on the chicks hatched have less vitality.

SUSSEX CLUB.

A Committee Meeting of the Sussex Club was held at 3, Vincent Square, Westminster, on Wednesday, January 9th, Mr. J. Russel, President, in the chair. Apologies for absence were received from Major Morrison and Mr. Horton Jefferson. After the Minutes had been read, confirmed and signed, it was agreed that a letter of sympathy should be written to Mrs. Eaton, Hillside Farm, Ore, expressing the regret of the Club at the sudden death of her husband, who had long been a supporter of the Club. The following business was transacted:—

1. The amendment of the Rules to meet the requirements of the Annual General Meeting.
2. The final drafting of the Egg-Laying Trial Scheme.
3. The formation of a Committee to publish the Club's Year Book.
4. The granting of medals to various shows and societies and the drawing up of regulations governing the Cups and Specials given by the Society.

The following new members were elected:—Messrs. C. F. Hawker, W. H. Wells, A. White, G. W. Pritchard, Cecil C. Sykes, Wm. Ellis, Miss D. Gee Williams. Life Members: Mr. and Mrs. J. Nagle, Mr. C. N. Goode.

The next meeting will take place on February 6th.

HAROLD MAYALL,
Hon. Secretary.

Correspondence.

THE L2 FACTOR.

To the Editor of "Eggs."

Dear Sir,—Mr. N. H. Porritt, in his letter published in "Eggs" of December 26th, 1923, asks some very legitimate questions about the "L2 Factor," and invites criticism.

What evidence is there for an assumption that Fecundity is inherited as a factor? Oscar Smart is certainly emphatic about it in his "Inheritance," but what about his own preface to the work?

This is so relevant to the question that I give the opening paragraph in full:—

"In giving this book, which contains the results of many years of research work on the inheritance of fecundity in fowls, to the public, I do so with no small amount of trepidation and fear. For cannot disguise from myself—it is not right that I should disguise from myself—that the art of breeding is a progressive science, so that the work of to-day too often renders the work of yesterday out-of-date. I know that had I written on this self-same subject even so short a period as three years ago, many of my deductions arrived at then, I could not have honestly supported now. I am glad I did not write the book then; I wonder if I am right in yielding to the importunities of my friends in writing it now! The answer to that question remains for the present in the lap of time."

What happens in practice? Hundreds of breeders, members of S.P.B.A., cheerfully ignore the L2 Factor—their prices are directly proportional to records. Does anyone know of an exception? Looking through my copy of this year's Register I fail to find a single bird registered whose winter record is below 40 eggs, in spite of the fact that records of 300 eggs are eligible, this year at least.

In "Eggs" of November 21st, 1923, page 348, we have Mr. Tom Newman saying that Oscar Smart would have approved of the recent revision of breeding rules increasing the winter minimum from 30 to 40 eggs. How can a higher record make a better breeder if inheritance is by factor and both figures are within the factor?

Again, we have Mr. Tom Newman telling us many times in "Eggs" that a bird's breeding value can be fairly assessed by her laying sequence.

Finally, that society of modern poultry breeders known as the S.P.B.A., has recently decided (unanimously—see "Eggs," October 31st, page 305) that a winter record of 40 eggs has a higher selective value than one of 30; hence, let the L2 Factor make a graceful exit.

None of the foregoing in any way reduces the sound foundation in breeding laid by Oscar Smart or diminishes the value of tested breeders.

HARRY ELLISON.

GENETICS.

To the Editor of "Eggs."

Sir,—I see my name occurs under the above heading in the January 16th issue of "Eggs." The information regarding my methods is new to me as I have never bred first crosses with a view to sex-linked inheritance, and have never contemplated so doing. I breed first crosses certainly, and have no intention of breeding in the future any more pure-breds than are necessary to keep my breeding pens supplied with the pure breeds required for first-cross breeding. I have found the first cross superior in every respect for table, eggs and table poultry, production, which is all I am concerned with in producing. I agree that the work of the pedigree breeder is necessary for my success, and I make all the use I can of his efforts. Sex-linked inheritance does not at all appeal to me, as I should never think of employing such a wasteful practise as it would be the sacrificing at birth of the cockerels. Besides the breeds that lend themselves to sex-linked inheritance do not appeal to me to be the best for breeding of the first crosses I have so far found preferable. I breed Houdan-Leghorns, White Leghorn cocks to either White Wyandotte, Rhode Island Reds, or Light Sussex, and for a heavy cross White Wyandottes on Rhode Island Red hens. All these breeds have been selected and bred for high egg production, and the assumption is that the genetics for egg production have become more or less fixed, and as generation succeeds generation are becoming still more inherent.

Yours truly,

T. W. TOOVEY.

P.S.—In all the experiments I have made the male bird fixed the type, but by no means the colour of the cross.

Mr. Toovey will appreciate that the remarks in reference to himself were taken from an American paper, and not our own.—(Editor.)

POST YOUR COPY EARLY

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

SIZE OF EGG.

To the Editor of "Eggs."

Dear Mr. Newman,—Re your Editorial, "Eggs," January 16th, might we be permitted to express our views with regard to the "size of egg" being an inherited factor. We certainly believe that size of egg is an inherited factor being transmitted from both male and female. You quote a number of examples, viz.:—"When a large egg sire was mated to a large egg dam 59 per cent. of the progeny laid large eggs." Now, as we are breeding our birds with a big eye on large eggs and plenty of them, we should like to say that the experiments do not convince us, on the ground that they do not refer to the pullet performance of the breeders. This is, in our opinion, the real test as to size of eggs.

We will give two examples:—(1) A pullet starts laying at six months old and size of egg to commence with is small, but after, say, several months she is laying 2-oz. eggs. (2) A pullet start at six months with almost 2-oz. eggs and continues to lay 2-oz. eggs.

There is a distinction between these two birds inasmuch that the first acquired the large-egg factor, the other inherited it. Now look at these two birds say at 15 months old. As a rule there will not be much, if any, difference in the size of their respective eggs; in fact, as hens they both may lay 2½-oz. eggs. If, therefore, we had not their pullet performance before us, it is quite probable that No. 1 would be selected as a large egg breeder, when actually she does not possess the "large pullet egg factor."

Surely it is the pullet performance that counts from a breeding point of view, and, as far as breeding for large eggs goes, it would be well to ignore the **hen's** performance and refer only to her record as a pullet. This would give one a definite idea as to which birds really carried the large egg factor (personally we prefer to call it the large pullet egg factor, for if a pullet qualifies as our example (2) she will not lay many, if any, second-grade eggs when a hen).

Referring to your paragraph: "When large egg parents were mated 41 per cent. of the progeny did not lay large eggs." How are we to know that the parents acquired or inherited their capacity to lay large eggs?

Assuming that a percentage acquired it, would not this account to some extent for the 41 per cent. laying small eggs?

Yours faithfully,
PERCY J. RICHARDSON and SON.

In reference to the last two paragraphs of our correspondent's letter, may we point out that this is a quotation from the report, and not from our comments on it.—(Editor.)

WYANDOTTE-BRESSE.

To the Editor of "Eggs."

Dear Mr. Newman,—I feel that you and readers of "Eggs" would be interested in the results, exceptional perhaps, of a Wyandotte-Bresse mating.

Eight pure White Wyandottes, which had very moderate winter records, ranging from 20 to 40, were mated to a White La Bresse cockerel, whose dam passes the S.P.B.A. Test; a few dozen of these eggs were hatched between February and April, 1923, resulting in about 30 very robust chicks, which were about half in number black, and the remainder an impure white; one or two of the White's had odd black feathers, and the former included one or two silver laced.

The bird matured quickly, and the cockerels were sold when three months old at good prices.

The first pullet started to lay early in September. I was able to follow up the results of a pen of seven blacks, which were sold to a Mr. Barnes, of Fulmer, Bucks, and he has kindly submitted to me their laying chart from October 15th, until yesterday, January 15th. The total number of eggs between these dates was 405, which works out at an *average* of 57.8 per bird; on two occasions eight eggs were laid in one day, one egg in each case was soft-shelled, however.

The eggs were a good size, from 1¾ozs. to 2ozs., and some were over 2ozs.

The birds were housed in a small 6ft. x 4ft. house with no wooden floor; they had no further scratching shed; they had a liberal supply of green food and feeding was as follows:—1½ozs. each per day of grain (three parts wheat, one oats, and one kibbled maize, by weight), fed in the mornings. Dry mash ad lib., as follows:—4 middlings, 2½ bran; 1 maize meal, 1½ S.G.O., and 1 fish meal, by weight.

I think the record is particularly good, and should be interested to hear from any readers with similar experiences with this cross.

Yours truly,
GERALD FOX.

THE 50,000 POULTRY FARM POSSIBLE.

To the Editor of "Eggs."

Dear Sir,—I have been following very carefully the correspondence in "Eggs" on the suggestion put forward by Mr. Morison on the probability in the near future of a 50,000 poultry farm being a successful undertaking.

Unfortunately a certain amount of heat has been engendered in the discussion, which is to be regretted I think for every reason.

It must be remembered that Mr. Morison is no armchair theorist; and those who have had the pleasure of seeing his plant at Leckhampstead will at any rate agree that if he is an optimist, he is at any rate a "practical" optimist.

But why should a 50,000 poultry farm be such an impossibility? I venture to think that before Mr.

Hanson started his farm in 1912, with about 1,500 White Leghorns housed in about three houses with 500 in each, no one in this country had ever thought of such a thing; and had the opinion of the "high-brows" of the Poultry World at that time been asked as to the ultimate result of such an undertaking, would it not have been universally condemned to an early and unprofitable end probably was so condemned? And why? Simply because those appealed to had never come across such a way of keeping fowls, and, therefore, success could not be possible. Has not the same thing been said about the steam engine, the submarine, telephones and flying, and yet we have lived to see all these accomplished facts, and may yet see "Television" and other wonders we wot not of; and I am perfectly convinced that with the knowledge that we have already attained to, there is no insuperable obstacle to the achievement of the 50,000 poultry farm "Right now," as the Americans would say, but it depends a good deal on the way in which we apply the knowledge we have already gained.

If anyone were to say to me, "Do you think it possible for a man to direct and run a 50,000 poultry farm off his own bat?" I should say it would depend on three things:—

(1) Whether the man was a born organiser with a very thorough practical knowledge extending over a number of years in handling large numbers of birds successful from a financial point of view.

(2) Whether he could get all labour he wanted of such a kind that he could rely on each and every one of them to be as reliable and painstaking in every little detail as if he himself were actually doing the work.

(3) Whether he could provide all the money such a big undertaking would require with a good margin over.

In 999 cases out of a thousand those conditions could not be fulfilled, and without these it could not succeed. Moreover, in one case in which it did succeed, success would be due to the great organising genius of *one* man, and when that guiding spirit went the way of his forefathers, or was laid by on a bed of sickness, the business would gradually go "phut," because it had been too centralized.

But this does not rule out the possibility of a 50,000 poultry farm being started right away, and being made a success from the beginning.

In these days when there are numerous examples in this country of successful poultry farms carrying from 1,500 to 5,000 head of poultry, and, I believe, 10,000 approximately in the case of Mr. Morison (vide "Eggs," October 24th, 1923) I suppose that no one will be found to contend that a 2,000 poultry plant is an impossible proposition from a financially successsful point of view.

I start, therefore, with the premise that a number of men can be found who could run a successful poultry plant *of their own* with 2,000 head of poultry.

Now I would turn for a moment to the article in your issue of January 2nd, 1924, "Southern California *v.* England," in which Mr. Fielding, after saying that he considered the 50,000 poultry farm an impractical proposition (apparently owing to unreliable labour), and that every ranch over 20,000 has been a failure (no reason suggested), ends up his article with a paragraph which puts in a nutshell my present point of view of the immediate possibility of the materialising of Mr. Morison's suggested 50,000 poultry farm, and with your permission I will quote it verbatim:—

"The only system which has proved a success is that adopted by Mr. Weeks in Los Angeles. He purchased a tract of land and colonised it, thus influencing only those who had a real interest in the business. He sold this land in one and two acre plots only on condition that they work under his system. The colonists buy a market co-operatively, and every unit is one-man unit, and every man his own boss. Help and advice is given to all gratis, and THERE ARE NO FAILURES. Mr. Weeks claims that no man is a success unless he can make two dollars a hen per year clear profit. All birds are kept on the intensive system, but are supplied with an abundance of greenfood."

Now I want to try and develop Mr. Morison's idea from this standpoint.

Let us begin by supposing that Mr. Morison, as the god-father of the scheme, and, to my knowledge, a born organiser, with great practical knowledge of the laying out of such a plant, were to *rent* a farm within 25 miles of London, on lease, with the option of purchase, at a rental of, say, £300 per annum, and having adopted some of the farm buildings for incubating purposes, proceed to peg out fifty units for 1,000 birds each. (Here, perhaps, I ought to say by way of parenthesis, that previous to renting a suitable farm, Mr. Morison would, of course, have ascertained, through the columns of "Eggs," the number of applicants for units on the farm under the system suggested in this letter." *Cela va sans dire.*)

He would then erect as many fowl-houses as there were demands for units. I have put the unit at a 1,000, because to have a smaller unit would be to unnecessarily multiply the unit owners, though there is no reason why one man should not own two, three, or more units.

Let us suppose now that as from Lady Day next, a farm at a rental of £300 per annum has been taken, and that 25 readers of "Eggs" have agreed to take 25 units of 1,000 each, and that the necessary houses have beeen erected to accommodate these birds, the runs wired in, water laid on, etc., what advantages will accrue at once from this system of co-operation?

1. The rent of the farm divided amongst 25 amounts to £12 per annum to each unit owner, and each unit owner can double his unit the second year without increasing his rent. (In this case the 50,000 scheme would materialise the second year with 25 owners).

2. A contract for erecting the necessary poultry houses and runs to accommodate 25 units of 1,000 birds each could be far more advantageously placed than if each owner negotiated separately in the usual way.

3. Foods would be bought in very large quantities, thus ensuring low first cost. It would be conveyed by the company's own lorry (I am assuming the concern

is registered as a Limited Liability Co., as it should be) to ONE place, instead of to 25 or 50 different places as in the present systemless way. The same lorry (or lorries) would serve to convey the eggs DAILY from 25,000 or 50,000 hens direct to the best London hotels and stores as GUARANTEED "DAY-OLD" EGGS (foreigners can't compete here), and when these hotels know that they are dealing with a well organised business, within 25 miles of London, on the 'phone, which can "deliver the goods," business won't be lacking at remunerative prices.

4. Each unit being a one-man unit, each owner can, if he chooses, do his own work entirely, in which case there would be no unreliable labour employed in the units (this has been the main objection to the scheme), though, if he chose to employ a man in the unit, he could easily supervise him. I would point out here that the unit owner in this co-operative poultry farm can devote his *whole* time practically to looking after his stock, being relieved under this system of most of those incidental worries that enter into the daily routine of the man who runs his own poultry farm. He does not have to worry as to foodstuffs. He has merely to make his wants known at the farm, and they are met. He need have no worries in regard to incubation. A sectional mammoth incubator is installed at the farm, and certain sections belong to him. He has but to hand over the required number of eggs to the man or woman in charge of this department, and in due course receive the day-old chicks. Then he has no worries as to finding a market for his produce or getting the produce there, and no correspondence in regard to the same.

This is all done by a "H. Q. Staff," paid for *collectively*. All this enables him to devote his entire attention to his stock.

5. In case of comparative novices taking a unit, help and advice in all matters relating to incubating, rearing and feeding would be available gratis.

6. The unit owners would be only those who had a real interest, financial and otherwise, in the business, and a friendly rivalry between the several unit owners should be all to the good.

7. Besides the motor delivery vans for fetching and delivering goods, the drivers' pay, the incubators and staff's pay, fuel etc., *being divided amongst all the unit holders*," "*pro rata*," it would probably be possible to instal in such a farm a cold storage plant, where during the "glut" season, eggs and table fowls can be kept back until more favourable markets prevail. This would be impossible on a private plant of ordinary size.

Now let us for a moment contrast this with the privately-owned 50,000 poultry farm, which I hazarded the opinion would fail in 999 cases out of a thousand unless three conditions could be fulfilled.

In the system under review, based on Mr. Week's system, in which, be it noted, THERE ARE NO FAILURES, it is as essential as in the privately-owned farm that a good organiser and a man with a good practical knowledge of his subject should start the farm, and take a leading part in it assisted by two or three co-directors, elected by the Unit Owners, as in any other business concern. Consequently should the company for any reason be deprived at any time of this organiser's services the business would not go "phut" because it rested on a broader business basis.

Now we come to the second point, an important point, which many of your readers have rightly laid stress on, namely, the difficulty of getting absolutely reliable paid labour, where that labour has no financial interest in the results. Under the "unit owner" system this is solved far more satisfactorily than could even be the case on a privately-owned 2,000 poultry farm, because the *owner*, freed absolutely from the incidental worries to which I have previously alluded, would have all his time to devote to his stock which must make for efficiency in the unit.

As regards finance, the outlay of capital being borne on the shoulders of many—each of whom has a direct financial interest in the success of his unit and the business as a whole—the money should be found without the slightest difficulty.

All that has been done is to collect 25 (or any other number) of men, or women, anxious to start poultry farming, on one perfectly equipped farm near London, each unit a one-man unit, each man his own boss, but never forgetting that he is one link in a system through which he benefits by the co-operation of his fellows, and maintaining towards the company of his fellow-men that spirit of "camaraderie" which is so essential to the well-being of the whole.

I would not have trespassed so much on your space, Sir, but for the following reasons:—

1. That Mr. Morison, the originator of the idea of the practical possibility of a 50,000 poultry farm, is a very practical business man, who has built up the largest one-bred poultry farm in this country—some 10,000 White Leghorns, I believe—and if he were to take up the equipment of a farm near London, such I have suggested, he could bring to bear on the undertaking a ripe experience which would be an invaluable asset.

2. That there are a number of people, ex-officers and others, who are unable to get a place where they can start, except at a prohibitive figure, and would gladly avail themselves of the opportunity to start under such auspicious circumstances.

3. That from the correspondence in your columns nothing will convince either side, save a definite example of a successful 50,000 poultry farm, when, perhaps, it will be accepted in the same way as 5,000 poultry farms are to-day.

The only "fly in the ointment" is the accommodation of the unit owners, but this is not insuperable.

Will Mr. Morison take a leading part by taking a farm, as from *Lady Day next*, call for volunteers to take units (for which he can count on me for one unit, if started at once, with another to follow the second year)?

With apologies for the length of this letter.

"WATCHMAN."

(If any explanation is needed for the re-opening of this subject after the intimation in a previous issue that it was closed, it will be found in the fact that "Watchman" is treating it from an entirely different standpoint, i.e., 25 separate units run on co-operative principles—not as one unit of 50,000 hens, over which we have had so much controversy.—Editor.)

EARLIER HATCHING.

To the Editor of "Eggs."

Dear Mr. Newman,—After all that has been said in favour of early hatching, it is not surprising that this season has commenced early, with the feverish desire on the part of many poultry farmers to participate in the goldfields, so far only reserved for the few who hatched VERY early. Personally I doubt rather if sufficient proofs have been offered to warrant such a complete change in the routine of the poultry farmer. I am afraid many will flounder and fail to secure that extra bit human nature is ever striving for. Hatching in December, January and February may or may not be easy work; the climatic conditions will to a great extent influence the results to the ordinary man. Surely this weather is a danger signal—Dame Nature becoming the quick-change artist, and not for the benefit of such as we poultry farmers! If your readers are going to follow modern advice, they should do so with their eyes open. If not, their lack of experience in dealing with early broods will land them in the ditch.

I send you the following particulars to add to your already big pile of arguments FOR early hatching, but personally I am not yet entirely convinced that we should become extreme in this new fashion.

There is the question of breeds most suitable, for it is obvious that not all can execute feats of steady egg production in the five most difficult months of the year. There is the future to reckon with, and the performance of the 1922 birds needs comparing.

One hundred and twenty Red pullets hatched late January, 1923, commenced to lay late July, and in August, September, October, November and December laid 9,671 eggs—an average per bird of 80 eggs in five months. Twelve neck-moulted, and at no time was the production below 50 per cent., except for three weeks in October. The eggs were small for about a month, and have kept a normal size during the whole period.

Two hundred Red pullets, hatched late in February, commenced laying late August, and in September, October, November and December laid 11,708 eggs in 135 days—an average of 58 per bird in just over four months. Broodies were about 10 per cent., neck-moults and broodiness almost negligible, the most noticeable rest taking place in mid-November.

One hundred and thirty hens, hatched March, 1922, laid in August, September, October, November and December 8,814 eggs—an average of 68 in five months, the whole lot moulting completely with rests and broodiness.

Five hundred April-hatched 1923 pullets, taking one month longer to mature, started laying early November and are putting up averages about equal to the January and February breeders, but, of course, laid a two-ounce egg to start with.

The autumn and early winter of 1923 was one of the most trying for many years, and played havoc with light breeds. The Reds were never kept indoors, and during snow and frost were out in the pens. Now the question is: Which are the best breeders—the 1922 or 1923 birds? By that I mean, which will give me the bonniest chickens, the best little egg machines?

Up-to-date we have incubated 2,500 eggs from these birds—1,100 from the January and February birds. These gave a remarkable number of strong chickens, 850 were put into the brooders, under the most trying atmospheric conditions. With the exception of two lots they have done exceedingly well, despite variations of temperature unparalleled in my rearing experience. After three weeks of handling chickens during most violent climatic changes, I would rather modify my advice to rear very early. Young chickens are most susceptible to sudden changes, and will easily succumb to chills. A bad spell of weather when days are very short and nights are long will very quickly upset their internal organs. This year it has been almost impossible to get chickens out on to the grass in this part of the country, which state of affairs causes considerable anxiety to the rearer. If one could be sure of one's weather rearing would become comparatively easy. As it is, the risks are very great. I do not mean to sound an alarmist note, but I should strongly advise those without considerable experience to defer hatching until the sun hangs a little longer in the heavens.

May I now reply to one of your reader's queries as to how I could rear a pullet for 4s. 6d.? As a matter of fact, I know mine do not cost me so much, but I think it unwise to quote very low figures. I reckon to feed chickens at the rate of one penny a week until they are twelve weeks old, and twopence a week for the next twelve weeks. My feeding is very economical, and contains very little animal food during the first four months. The cost of the egg and hatching same is very small indeed. I can assure him that I have not exaggerated the point.

Yours truly,

JOHN MEEKINGS.

January 23rd, 1924.

FISH MEAL.

To the Editor of "Eggs."

Sir,—I am indebted to your paper for a hearty laugh, for when I saw that advert. in the "Times," I said, "Now some 'Eggs' readers will be happy," and sure enough he has found a grievance. The advertiser must know much more of the trade than I do, if he has found a way to make £10 a ton profit, and we will leave it at that.

No one can fix his own profits, that is settled by the law of supply and demand and by trade competition. Would any poultry-keeper sell his eggs at 3d. each if he could make 4d.? It is absurd—a thing is worth what it will fetch in the open market. No food ever made such rapid progress in the public estimation as has fish meal. The demand has been so great that most of us have been oversold and stopped advertising. We have been reluctantly compelled to refuse many orders, and we have lists filed of new merchant enquiries that we cannot supply, reserving what we have for old customers. The firm which I have the honour of being connected with is a co-operative one, and the works are managed by directors representing the whole fishing industry of our port. Under their constitution they are only allowed to make an ordinary investment percentage of profit on capital. The rest goes to the trade for raw material. The fishing industry has been so bad, owing to the cost of coal, ice, labour, and gear, that many trawlers have been laid up to avoid losing money. That is one cause of the shortage.

As regards the distributing side, we allow the same margin to cover costs and profit as we did when fish meal was £12 per ton in 1924, although our costs have greatly increased, so that it makes no difference to any of us what the price is except those engaged in the fishing and wholesale fish trade, and they badly need it. We know a great deal of what other makers are doing, and can assure the public that none of the makers of honest fish meals are getting more than a reasonable trade return for their capital and expenses.

Yours faithfully,
GEORGE A. PALMER.

OUR FRONT COVER.

These are the days of the laying duck, whether they are altogether a more profitable proposition than the pure "table" duck we have yet to discover. It is at least a pleasure to see such a flock of Aylesbury's under such picturesque surroundings as those bred by Mrs. Harry Kent, which are illustrated on our front cover. The breed did not originate at Aylesbury, as the name implies. It was once known as the "White English" duck, and the name Aylesbury is due to the fact that it was largely bred in that district, which, as everyone is aware, is the centre of the table duck industry.

No other breed of duck can compare with it for table, either the early age at which it attains the required size, or its flavour or quality of its flesh.

But Mrs. Kent's activities are not confined to ducks. As a breeder of Black Leghorns and Light Sussex she has been uniformly successful. Her aim with the former is to conform as nearly as possible to the British Black Leghorn Club standard. Her first four pens consist of selected hens with records of 42-60 eggs each. Pen 5, in which every bird has passed the S.P.B.A. test, is mated to a Dairy Winning cockerel.

With Light Sussex Mrs. Kent has been equally successful, and her efforts to maintain type combined with good size, markings and egg production might well be imitated by some of our breeders of Light Sussex, who fail badly in this respect.

Mrs. Kent originally bred exhibition White Leghorns, but has now turned her attention to the Utility side; the introduction of American males from a 273-egg hen has had a marked effect on the productivity of the stock.

The conditions at Stanbridge Court are ideal.

S.P.B.A.

(Continued from Page 85.)

SECOND-HAND INCUBATORS.

May I give a word of warning to those who apply to advertisers of second-hand incubators? No doubt a great majority of these are genuine. Still the fact remains that there are a number of unscrupulous individuals who are simply running about the country buying up any old box which can be called an incubator, and advertising it as being in good condition at a price much in excess of its value. It is quite customary to say it is built on the plan of some well-known make, which really means it is a home-made machine. To quote one case. An advertisement appeared in a certain journal of a Hearson Incubator, second-hand, price £7 10s., in first-class condition and intact except for the drawer and thermometer. When received it was badly damaged, only packed in sacking, no capsule and no tank or thermometer; and, above all, it was not a Hearson but an imitation. The purchaser wrote saying he would give £4 for it, and if that was not accepted he would return the incubator to the advertiser. The advertiser refused to take it back and refused to pay back any cash. The complaint was made to the editor of the journal in which the advertisement was inserted, and his reply was that nothing could be done. Of course nothing could be done. The only thing to do was to take County Court action, which would probably be a waste of time and money.

I advise my readers to keep clear of dealers in second-hand incubators, or, at least, if they have any transactions, that they should deposit the money with the Editors of the Poultry Journals, and insist that the machine be sent on approval.

I am distinguishing between those who are selling genuine second-hand machines, for which they have no further use, and a dealer who is buying up all sorts of rubbish and selling it at four times its value.

INSPECTION AND REGISTRATION OF STOCK.

The following letter has been received from Mr. Black :—

"Dear Sir,—I duly received your reply to my application to have my farm inspected by the Ministry of Agriculture, and I note with surprise that only farms that trap-nest are to be granted the opportunity of obtaining the proposed certificate. In other words, any backyarder who belongs to the S.P.B.A. and trap-nests, and is willing to pay the three guinea fee, is entitled to this inspection ; but the largest commercial farms, a number of which do not trap-nest, are to be barred.

"I understand one of the principal objects of the granting of this certificate is to give the prospective buyer confidence, or a guarantee that the stock, etc., on a certified farm is sound. Therefore it must follow in the mind of the prospective buyer that the stock, etc., on an uncertified farm is not sound, which, in my opinion, is grossly unfair to those farms that do not practice trapnesting."

I feel sure, if he considers the position, that he will see there is nothing "grossly unfair" to the commercial egg farmer. The latter's position has never been assailed. On the contrary, there has been a strong suspicion, indeed, one may put it more plainly than this, that on a number of so-called pedigree farms trap-nests are few and far between, and it is to enable buyers to avoid these that the proposed Inspection and Registration is to be undertaken. The efforts of the inspectors will be devoted to discovering whether there is a sufficiency of trap-nests, and that records are genuine. In addition, of course, they will note that the stock is healthy, and typical, housing accommodation, etc., is satisfactory.

If it was merely a question of giving the prospective buyer a guarantee that the stock on the farm was sound, it would be a different matter; then, of course, the commercial egg farms would be included, but it is not so. The object is, as stated above, a register of pedigree stock. At present the scheme is only in its infancy. It is possible that if it proves successful some provision may be made for Inspection and Registration of commercial egg farms—that I cannot say ; but let me point out that this is not done for the purpose of advertisement, but as a means to an end:—(1) The protection of the buyer and the pedigree breeder ; (2) an endeavour to raise the general standard of the stock throughout the country ; (3) protection for the genuine pedigree breeder.

KEIGHLEY BRANCH.

Strikes and other circumstances permitting, I am due to lecture to our Keighley Branch, at the Temperance Hall, Keighley, on Wednesday evening, February 6th, at 7.45, the subject being "Nutrition." There will be a silver collection. Our Keighley Branch has many active and enthusiastic members, and it will be a real pleasure to me to make their acquaintance.

NOTICE *re* MR. HANSON'S SCHEME.

Owing to the dislocation of the Postal Service, caused by the Railway Strike, we have received too late for insertion in this week's issue the report of the Committee on Mr. Hanson's Scheme for a fattening station.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package. and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations

W. G. (Preston-Wynne). As your pen of Leghorns are three years old you must not expect to get many eggs so early in the season. They will improve as time goes on. Just handle them carefully and see that none of them are in an over-fat condition. I would not advise any change in the food if you are satisfied with what results you have had up to date. Of course, being a proprietary food, I cannot tell you of what it is composed, but I think it would be inadvisable to add fish meal. The formula you mention would suit your pullets as a dry mash formula. If you hatch them about April 10th put them on this when they are sixteen weeks old:—3 lbs. bran, 4 middlings, 1 of ground oats, 1 of maize meal, ½ meat meal. This should be in hoppers always before the birds. At the beginning of September reduce the bran to 2 lbs. The grain should be two parts kibbled maize, one wheat and one good oats. Give one handful of these between every five birds as the first feed in the litter, in order that they may have scratching exercise, and one handful, or 1½ ozs., as the last feed about half an hour before they perch, also in the litter. As your Leghorns seem to be a good pen, and you are mating them to a good cockerel, I do not think 10s. 6d. for sittings of eggs is excessive. Be sure that the ingredients of the mash, particularly the bran and middlings, are of the best quality.

C. C. R. (Andover). Condemned tin milk can be safely used for chicks. I calculate that 1 oz. of dried skimmed milk would be equal to ¾ pint skimmed milk by measure. The 25 lbs. of brewers' grains would be equivalent to about 100 lbs. of the wet grains. I cannot tell you which of the two mills you could get the best middlings from, but you want the white, floury middlings and not the red ones, which contain too much of the bran. The sample of red middlings which you send is pollard, which is really fine bran.

G. M. B. (Malden). I would not care to have chickens running on land where ducks are kept, because ducks foul the land, and it would be essential for positive developments that they should not run over foul land. I cannot say that I ever knew it caused disease of the foot. That is probably a pure coincidence. I would not change from the kibbled maize at all, or make any change in the formula, which is giving good results.

"Amateur" (Leamington). I cannot advise you as to breeding from the R.I. Red hens, 1922 hatched, as you only give me their early spring and summer performance, and do not say what they did in the autumn and winter. As they began to lay so early, and they have not laid since, I am inclined to think they are not good enough to breed from, even with a good cockerel. Certainly, as they do not appear to possess the winter-laying factor they are not likely to breed winter-laying progeny, for they cannot transmit what they do not possess.

F. W. (Dewsbury). I expect the drop in the egg yield is simply due to the fact that you have stopped the feed at night. You did so just at the wrong time, when the days are at their shortest, and when you should have persevered with it. I am afraid I cannot offer you any other explanation.

J. H. (New Longton). With regard to the 3 formulas you give—oats boiled and dried off with one part each of Sussex ground oats, maize meal and meat meal. There will be no object in drying off oats with oats, so that it would be advisable to omit them. Of course, you must take into account the proportion of oats which you are using; they should not exceed that of the maize meal. To dry off fresh fish with the other ingredients as above:—If you do this you must leave out the meat meal, and, of course, if you boiled split maize you would leave out the maize meal, and be very careful with the proportions. Do not exceed that of one part maize meal, or you would soon get your birds in an over-fat condition.

G. R. R. (Rugeley). You could make up a good mash of: Two parts bran, four sharps, one of Indian meal or rice meal, one of soya bean meal, half meat or fish meal, and the grain feed should be three parts of wheat, one of good white or black oats. I would not use palm kernel meal, and these parts are by weight. With regard to the mash for chicks. This is a dry formula. The first week give a dry chick feed made as follows:—15 parts finely cracked wheat, 15 parts finely cracked maize, 10 split groats, three of canary seed, and two of hemp seed. Let them have a hopper of dry bran before them always and skimmed milk to drink. From the sixth day place them on the following formula:—One measure of maize meal, one of meat meal, four each ground oats, and good middlings. Have one measure of this, and mix with four measures of bran. This should be in hoppers always before the birds. See they have plenty of scratching exercise, and give milk if possible. At the end of a month reduce the proportion of bran by one half part, and at the end of eight weeks you could put them on an adult mash, made of: Two parts bran, four sharps, one of Indian meal, and one of ground oats, and if they are on free-range half of soya bean meal. You tell me you are keeping heavy breeds on grass runs of 20 yards square, but you do not say how many you are keeping in each run.

N. J. H. (Middlesex). The clover meal is rubbish, merely the residue from the threshing of clover for seed, and only fit for litter. I had a sample sent me from a farm last week which was offered at £4 per ton, quite as good as this. The middlings are a moderately good sample. The fish meal is fair, but you should buy this with an analysis. These are not "Sussex" ground oats, and are not even a good sample of ground oats. The dried yeast is good, the bran fairly good, and the maize meal is also good. You were quite wrong to reduce the bran, and add that wretched stuff you call "clover meal." If you give them swedes they will carry them through until there is more green stuff available. Do not give Epsom Salts. I could not reply by post as you did not give your address, but simply your initials, and there was nothing urgent to reply.

"Wyandotte" (Devon). Sussex ground oats are of more value than the ordinary pulverised oats, as you describe them, because the fibre is ground to such a degree of fineness, and is more easily attacked by the digestive juices. If a home-grown oat were well ground, although quite as good in nutritive food, it would not have the same value as the "Sussex" ground. If you would send me a sample of these pulverised oats I might be able to answer your question better as to their value. Will you please turn to my reply to C. J. S. (Coventry) in last week's issue of "Eggs," which will give you dry mash feeding from shell to maturity. The accommodation for 50 birds I would suggest would be for your house to be 16ft. x 12ft., 9ft. x 10ft. wide would not be enough. You had better go to 12ft. A 10ft. house is always a disappointment.

H. J. F. (Shefford). The sample of dried yeast you sent is not a good sample—the flakes are too large, and the price is too high. You could get a much better sample at 1s. per cwt. cheaper, delivered, as advertised in our columns. The Dan is only a moderate sample. I should like to see more flour in it. The maize germ is very good, and the price fair. The ground oats are not "Sussex" ground, and only a moderate sample. At £1 per cwt. the price is extortionate. The fish meal appears to be a good sample, and at 19s. cwt. is cheap; but you should buy this on a guaranteed analysis that the salt or oil content does not exceed 4 per cent.

Limes (Nutley). Garlic is not injurious to fowls, but if given in excess it will taint the eggs. chopped garlic mixed with butter was a very old remedy for roup, and a fairly effective one. The outside leaves of cauliflowers are not injurious to poultry.

P. C. (West Bromwich). Yes, the pen 12 x 6 would be large enough to keep 12 White Leghorns successfully intensively. You must, however, take great care with the litter; this should be sufficient, and be kept perfectly dry—that is most important, as damp litter is a prolific cause of disease. See, too, that you supply plenty of green food.

Dutch (West Moors). I would advise you not to breed from these 1923 hatched birds, as they were bred from pullets themselves. The fact that you propose mating to a February cockerel has really no bearing on the question. I can understand the temptation; but be wise—resist it. Wait till next year.

E. J. (Swinton). When a hen is laying heavily, the ovary is plentifully supplied with blood to promote the rapid formation of yolks. As a yolk sac is ruptured to release the yolk, some blood may escape from a congested blood vessel of the sac. That explains the blood spot in the yolk of your eggs. I expect it is only one of your birds laying the eggs, the feeding would not explain it, but you would do much better if you reduced the clover meal to two parts, increased the middlings to six, and replaced the pea meal with maize meal.

Bill (Buckland). You may try the following for your dry mash: Ground Dari and oats one part each, middlings four, meat and bone meal half part. As a change give the biscuit meal in place of the dari meal, but do not use barley meal and biscuit meal. Haricot beans sometimes cause digestive disturbance, so it is not advisable to use them. As you say all your meals are home ground, I think the mash will have bulk enough.

POST-MORTEMS.

"B." The pullet was a tubercular mass inside; the belly was simply filled with tubercles affecting all the organs. Her body was much emaciated. If you handled, as you should, the wasted flesh and the enlarged abdomen would have told you that something was seriously wrong, and if you trap-nested you would have discovered that you were losing on the keep of such a bird. The compounds referred to would not *cause* tuberculosis, but the over-stimulation of the liver would *excite it*. Do not resort to these artificial things, but follow the instructions published by Mr. Newman in the "Register." You will find some useful information on the subject of tuberculosis in fowls in the Leaflet No. 78, issued free by the Ministry of Agriculture, in response to an unstamped application to the Secretary, 10, Whitehall Place, S.W.

White Leghorn Pullet (F. R. F.). Acute case of tuberculosis of the bowels and mesentery. See other replies, and apply for a free copy of Leaflet No. 78, Secretary, Ministry of Agriculture, 10, Whitehall Place, S.W. Your letter need not bear a stamp.

Cross-bred Pullet (A. E. C.). This bird had a blood disease which caused great thickening and softening of the skin of the breast, extending from the crop backwards, and between it and the flesh a large quantity of oily fluid, like that discharged from horses's legs when suffering from lymphangitis or "Monday morning disease." It is, in fact, an inflamed condition of the lymphatics, and the products are alike in both. More exercise is needed, and ten grain doses of sulphate of sodium daily, dissolved in water and mixed with food. An occasional 24 hours' fast would also reduce the tendency to this trouble. If you are feeding maize, delete it altogether from the ration. If you have no range, mix their corn in litter that will need much scratching over to find.

H. W. C. The chick had pneumonia, and I should have liked to have had a couple more for comparison, as the type was not infectious, but the circumstances point that way. Seeing that the hen-hatched do not die, it looks as if the management was wrong, or else the cases infectious through the brooder.

"K." The first chick to be opened had peritonitis, caused by the condensation of the contents of the yolk sac. The second had chicken coccidiosis, the caeca being filled with the characteristic products of inflammation. The third was like the first, but had a lot of jelly in the abdomen in addition. The contents of the rectum were not far from normal. Nos. 1 and 3 I should regard as constitutionally feeble, and unable to absorb the yolk, or too early fed, and the process thereby checked. No. 2 is an infectious disease, but usually curable by giving catechu fifteen grains to the gallon of drinking water for a week or ten days, and following on with iron and quinine citrate, twenty grains to the gallon.

"W." On opening the first chick, and finding acute indigestion—nay, absolute arrest of digestion and yolk sac bulging—I hoped that your diagnosis was the correct one, but the next had pneumonia, the third pneumonia, and this one as well as No. 4, had the typical lesions in the caeca, or so-called blind guts, of chicken coccidiosis. That one with pasted vent had made considerable progress. The changes of temperature when day-olds travel, and then go into a brooder at "80-85" are extreme. The unsuitable substance in the food mentioned might have suspended digestion, and left us a good hope that the trouble was accidental only, but the lesions of the caeca cannot be ignored. Try the acid catechu treatment while taking every means of disinfection and segregation, and killing all droopers promptly, and burning them. My own opinion (or prejudice) is against whole milk, whether diluted or not. Fifteen grains of catechu dissolved in hot water and mixed with a gallon of drinking water: alternate daily or for half days with half an ounce of dilute hydrochloric acid P.P. to the gallon, is the strength we found so valuable last season.

"S." I have considered your description of bird's symptoms, but cannot make a positive diagnosis. But for your reference to the pallor of the comb, following on catarrhal symptoms, I should have taken it to be infection of the orbit through the cleft palate. Such cases are usually curable, although perhaps requiring changes of medicaments. Syringing the cleft with one per cent. permanganate one day, and with 25 per cent. peroxide of hydrogen in water on alternate days, and iodine once a week, I have found successful. The bulging eye is not itself affected; it is the socket, or orbit, that contains matter, which is at first fluid, and easily evacuated, but afterwards becomes thick matter, and finally like cheese, but never breaks and comes to a head, nor is it ever absorbed by external remedies. If you do not suspect tuberculosis or other wasting disease, you might persevere with the above, but you need to boldly slit open the swelling, and prevent re-filling by daily pulling the lips of the wound apart, and washing out with one of the above disinfectants. I do not like the erratic egg laying in her at all—it is too suggestive of uterine trouble. The slaughtering-out principle is, as a rule, a sound one, but where a valuable bird is concerned, and isolation practised, I must say that I like to use every means before killing, as hopeless. You might brace her up with one grain of quinine and two grains of extract of gentian, as a daily pill.

E. G. B. The Wyandotte's death was due to peritonitis, caused by excessive production of eggs which could not get into the tube, but were free in the abdominal cavity, where they provoked inflammation. This is a not infrequent accident among the most prolific strains, but was an extreme case, in which there were five yolks of more than normal size and many ripening in the ovarium besides. She was too fat inside, your ration being an unbalanced one. You would do well to follow Mr. Newman's formulæ.

W. W. K. The R.I.R. pullet had produced too many full-sized yolks to obtain passage down the duct. Some were spilled into the abdominal cavity, one at least was broken, and the contents dispersed among the bowels, setting up acute peritonitis, collapse, and death. Readers who follow these reports will know that this is a frequent source of loss among prolific layers, and recognise that the pace can be forced too much, and that a few generations must pass away, and those which cannot stand modern methods must die out, before the 300-egg fowl becomes the standard generally. Some poultry-keepers invite this particular trouble by over-feeding and spicing, and artificial lighting.

G. L. G. The chick was suffering from pneumonia. It is not of the infectious type, but is liable to become so. Some error in management of temperature seems likely. Feeding young chicks by lamp-light seems to me like waking up babies to "pass the bottle," and does not commend itself to the trained nurse.

Miss M. Your letter said three chicks. There were four in the box. The largest one presented no lesions or signs of illness. The other three had pneumonia. Two had yellow embryonic livers which had not made the progressive changes necessary to produce the bile so essential to digestion. Feeding too early is one of the causes of arrested digestion, but I do not think that was the case, as the yolk had been absorbed, save in one case, and that had hardened and was causing an inflammatory area. There is not a word to assist one from yourself. May I invite your attention to the article in "Eggs" on January 9th, particularly the last three paragraphs. With every assistance from senders of subjects for post-mortem examination it is not always possible to discover the cause of death in young chicken whose little light is easily blown out.

M. S. The chicks were not affected with B.W.D. but with chicken coccidiosis, which is an infectious disease, and I am therefore notifying you by post, as you cannot see the printed reply for eight days (this being Wednesday). As soiling of the food of others by the droppings is the chief means of spreading the malady, you will take every precaution. Last year we had much success with the cathechu treatment, giving fifteen grains of the drug in each gallon of drinking water, and on alternate days, or half-days, water acidulated with four drams of dilute hydrochloric acid to the gallon. Replies in "Eggs" cannot be identified in connection with anyone's poultry farm, but it is thought that some information may be spread by publishing them.

H. LEENEY.

BRIGHTON STOCK TEST.

REPORT FOR DECEMBER.

HEAVY BREEDS SECTION.

Competitor and No. of Pullets.	Breed.	Hatching and rearing score.	Dec. eggs.	Total eggs.	Total score.
R. Mummery (9)	W.W.	83	142	341	120
High Halden (1)	W.W.	26	17	37	63
W. F. Morris (12)	W.W.	65	162	365	95
Countess Buxton (5)	W.W.	38	75	152	68
Mrs. Crooks (4)	W.W.	32	59	119	62
W. Crabtree (10)	W.W.	61	164	326	93
Brighton (8)	W.W.	57	120	251	88
Craig Gallon (8)	R.I.R.	64	81	185	87
Col. McLeod (9)	R.I.R.	67	141	342	104
Mrs. Russell (6)	R.I.R.	59	60	182	89
R. Saunders (7)	R.I.R.	55	84	191	82
S. Simmins (10)	R.I.R.	72	81	203	92
Capt. Woodford (14)	R.I.R.	91	153	331	115
Capt. Tomlinson (9)	R.I.R.	64	135	254	92
Miss Clark (10)	R.I.R.	66	124	230	69

LIGHT BREEDS SECTION.

Bradbury (14)	W.L.	83	214	466	116
"B." (15)	W.L.	93	221	447	123
E. Coles (10)	W.L.	83	199	452	128
Chisbury Farm (17)	W.L.	98	173	406	122
E. Street-Porter (18)	W.L.	104	274	579	136
B. Glendenning (17)	W.L.	94	204	454	120
Mrs. H. Kent (18)	W.L.	116	123	257	130
Sweet Escott (19)	W.L.	115	207	446	139
David Brown (18)	W.L.	115	194	400	137
Amsden Bros. (17)	W.L.	102	261	484	132
D. Gunston (16)	W.L.	91	298	551	125
Miss Maddison (18)	W.L.	121	174	330	139
"R." (14)	W.L.	99	149	362	125
Court Farm (17)	W.L.	107	174	405	131
Brown's P. Farm (9)	Anconas	82	98	165	100
Mrs. A. Stuart (10)	B. Leghorns	68	109	183	86
"W." (13)	B. Leghorns	83	201	392	123

JOHN H. DOWDEN.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING FRIDAY, JANUARY 25th, 1924.

GRAIN AND FEEDING STUFFS.—Home-grown wheat continues to be very sparingly offered, and a fair enquiry prevails at a further advance of 2d. per cwt., the average quotation this week being 10s. 4d. per cwt. The small supplies of imported wheat on offer are practically all Canadian for which quotations have a hardening tendency, and at Bristol parcels to arrive are quoted at the same price as supplies on spot. British barley is in good demand and prices are higher at London where feeding samples are almost unobtainable at the advance. Imported grinding sorts are in very short supply, and, with a good enquiry, quotations are again higher in most cases. Limited offerings of British oats readily maintain recent rates, while imported realise more money. Spot supplies of maize are scarce, and meet a fair demand at increased rates, Argentine averaging 10s. per cwt. (43s. per 480 lbs.) as compared with 9s. 10d. per cwt. (42s. 3d. per 480 lbs.) a week ago. A fairly good demand exists for milling offals and prices incline to advance, while quotations for meals are very firm.

MILLERS' OFFALS.—Bran (British): Bristol, £8 7s.; Hull, £7 12s.; Liverpool, £7 15s.; London, £8. Broad Bran: Bristol, £9 15s.; Hull, £9 2s.; London, £8 15s. Fine Middlings (Imported): London, £10 7s. Coarse Middlings (British): Bristol, £9 2s.; Hull, £9. Liverpool, £8 15s.; London, £9 7s. Pollards (Imported): Bristol, £8 5s. Rice Bran: Bristol, £7 15s.; Liverpool, £7 10s. MEAL.—Barley Meal: Bristol, £11; Hull, £10 15s.; London, £11 7s. Maize Meal: Bristol, £11 5s.; Hull, £10 18s.; Liverpool, £10 12s.; London, £11 5s. Maize Meal, (S. African): Liverpool, £10 5s.; London, £10 5s. Maize Germ Meal: Bristol, £10 10s.; Hull, £10 5s.; London, £10 7s. Maize Gluten Feed: Bristol, £10 15s.; London, £9 2s. Locust Bean Meal: Bristol, £8; Hull, £8; Liverpool, £8 5s.; London, £8 5s. Bean Meal: Bristol, £13; Hull, £11 18s.; London, £12 15s. Fish Meal: Bristol, £21; Hull, £20 10s.; Liverpool, £20; London, £20.

EGGS AND DEAD POULTRY.

British Eggs continue to arrive in increasing quantities, and quotations are unchanged except at Bristol, where 1st quality advanced 1s. 6d. per 120. Only a moderate trade exists for poultry, but best qualities of fowls, ducks and geese are 1d. per lb. dearer at London, owing to lighter supplies at the week-end.

Week-end Prices—Eggs (per 120): British, 28s., 25s.; Irish, 27s., 24s.; Danish, 31s., 29s.; Dutch, 30s., 28s.; Moroccan, 18s., 17s. 6d.; Egyptian, 13s. 6d., 12s. 6d.; Italian, 25s., 23s.; Styrian, 23s. 6d., 23s.; Chinese, 18s., 13s.

Dead Poultry (per lb.).—Fowls, Surrey, 1s. 10d., 1s. 6d.; Irish, 1s. 5d., 1s. 1d.; Others, 1s. 4d., 1s. 0d. Ducks, 1s. 7d., 1s. 4d. Geese, 1s. 3d., 1s. 0d. Turkeys, 1s. 8d., 1s. 5d.

EGGS.

Per Doz.—Ashford: First, 2s. 6½d.; Second, 2s. 3d. Birmingham: First, 2s. 9½d.; Second, 2s. 6d. Carlisle: First, 2s. 9d. Chelmsford: First, 2s. 9½d.; Second, 2s. 7¾d. Denbigh: First, 2s. 4d.; Second, 2s. 3d. Derby: First, 2s. 8d. Exeter: First, 2s. 6d. Hereford: First, 2s. 3d. Hull: First, 2s. 3d. Ipswich: First, 2s. 9d.; Second, 2s. 6d. King's Lynn: First, 2s. 6d.; Second, 2s. 3d. Lincoln: First, 2s. 6d. Llandilo: First, 2s. 3d. Montgomery: First, 2s. 6d. Newport (Mon.): First, 2s. 8d.; Second, 2s. 6d. Norwich: First, 2s. 3d. Oswestry: First, 2s. 9d.; Second, 2s. 7d. Penzance: First, 2s. 0d.; Second, 1s. 11d. Salisbury: First, 2s. 6d.; Second, 2s. 4½d. Shrewsbury: First, 2s. 6d.; Second, 2s. 3d. Skipton: First, 2s. 3d. Truro: First, 2s. 1d. York: First, 3s. 0d.; Second, 2s. 9d.

FOWLS.

Per lb.—Birmingham: First, 1s. 4d.; Second, 9d. Derby: First, *5s. 3d.; Second, *3s. 0d. Exeter: First, 1s. 7d. Hereford: First, 1s. 3d.; Second, 1s. 2d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Lincoln: First, *5s. 6d.; Second, *3s. 6d. Llandilo: First, 1s. 7d.; Second, 1s. 4d. Newport (Mon.): First, 1s. 5d.; Second, 1s. 2d. Shrewsbury: First, 1s. 4d.; Second, 1s. 2d. Skipton: First, 1s. 7d.; Second, 1s. 5d. Truro: First,

DUCKS.

Per lb.—Birmingham: First, 1s. 2d.; Second, 1s. 0d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 5d.; Second, 1s. 2d. Hereford: First, 1s. 3d.; Second, 1s. 2d. Llandilo: First, 1s. 7d.; Second, 1s. 5d. Newport (Mon.): First, 1s. 5d. Shrewsbury: First, 1s. 6d.; Second, 1s. 4d. Skipton: First, 1s. 6d.; Second, 1s. 4d. York: First, *6s. 0d.; Second, *5s. 0d.

* Per Head.

Marking of Foreign Eggs.

Col. M. J. Wilson, M.P., advises us that Admiral Sir Guy Gaunt, K.C.M.G., C.B., C.M.G. (Buckrose Division of Yorks), drew a good place in the Ballot and has put down the Merchandise Marks Bill. As our readers are aware, this contains a clause for the Marking of Foreign Eggs. The second reading will take place early in March, probably on the 7th. Every effort should be made to secure the support of Members of Parliament, and those who have the objects of the Bill at heart, particularly that clause relating to the marking of foreign eggs, should write at once to their local M.P.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, February 6th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

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EDITORIAL.

HEREDITY.

A man once wrote a book, entitled, "Women," by "One Who Knows Them." Needless to say, he was unmarried. Some two years after its publication he took unto himself a wife; after a time an old friend called to see him, and enquired how the book was going. "Oh," said he, "It's going all right, but I have learnt so much since my marriage that I shall have to publish a revised edition." Forty years later the old friends met again, and in reply to a question as to whether he had ever published a revised edition of his book, the author shook his head sadly. "No," said he, "I am still learning."

So it is with Heredity, so it is with every subject in the world; but it sometimes needs a lot of experience for us to realise it.

In a recent issue of "T.P.'s and Cassell's Weekly" appeared an article, entitled "Hereditary Instincts," in which the writer solemnly assures us that our custom of walking on the right hand side of the footpath, instead of on the left, is due to the habit of our ancestors of carrying swords, and it is this discarded habit that makes us keep to the right instead of to the left, though we don't know why we do it—to quote the writer: "Not realising how very long it takes us to break down *hereditary instincts* (the italics are ours) bred in us for countless generations.

Again: "Nowadays men take off their coats to fight with their fists, not (as is generally supposed) for the sake of coolness, or because their sleeves may hamper their movements, but mainly because their grandsires, when they engaged in a duel to the death, did precisely the same thing to show they had no sort of armour concealed about them."

It appears to be as difficult to distinguish between Instinct and Custom, as it is to find the dividing line between Instinct and Reason. Do we any of us believe that we walk on the right side because of Hereditary Instinct? Is not a more simple explanation to be found? Are we not merely following a custom in which instinct plays no part, a custom dictated by convenience, maintained for convenience, and which no serious effort has ever been made to change, because no valid reason has been given for doing so.

If the Hereditary Instinct failed Carpentier, can we seriously contemplate his entering the ring in his coat? If he did fight a 20 round contest in his coat, would he be instinctively thinking of his grandsires, or of his comfort? Every schoolboy takes off his coat when he fights because he knows he would be hampered if he did not. He is not in the least influenced by what his grandsires did. But we talk of so many things as being due to hereditary factors. The winter record, is that as a separate factor, inheritable? Is it not simply high fecundity that is inheritable? It is an interesting point and a rather important one, too. Again, we talk of inherited crooked breast bones. Those which are acquired through faulty perching are, of course, not inheritable, as acquired characteristics are not inherited, but with some of the highly fecund stock there is a distinct tendency to soft bone, and it is this tendency which is transmitted and not the crooked breastbone. We hope our readers will not accuse us of splitting straws, because this, too, is rather important. If we accept the crooked breast-bone as inherited, then we can only treat it as a breeder's problem; if, on the contrary, we accept the fact that it is the tendency to soft bone which is inherited, we may deal with it to some extent as a problem of nutrition.

The dictionary definition of Heredity is: "Transmission of qualities of like kind with those of the parent; the doctrine that the offspring inherits the characteristics of the parent or parents." That is clear enough, but there appears to be a dangerous inclination to attribute to heredity other things which, if we are not careful, may confuse the issue. One of the weaknesses of the scientist is his tendency to look for the complex rather than the simple solution of a problem.

NORTHERN ISLAND LAYING TEST.

The first Laying Test, conducted by the Ministry of Agriculture for Northern Ireland, extended over a period of 48 weeks, and the records of the birds, particularly the Wyandottes, must be regarded as satisfactory; indeed bordered on the sensational. The winning pen, belonging to Miss Stevenson, actually laid 1,492 eggs in the 48 weeks, which is claimed to be a world's record in any official test. Retained at Stormont to complete the full year, they laid 1,593 eggs, an average of 265.5 per bird, an achievement of which the owner may well be proud. The individual records for the duration of the test are of interest:—286, 229, 249, 251, 232, 240. With one single exception, the percentage of second grade eggs was very small. Mrs. Porter Porter had a wonderful pullet, which laid 294 eggs during the test, and in the complete year, 320 eggs, a record for a Wyandotte in an official test; 263 of the eggs laid during the test were first grade.

The Leghorns were not so satisfactory, but Lady Dunleath had a wonderful pullet, which laid 262 eggs, 248 of which were first grade. Mrs. Campbell's pen won in this section with a record of 1,343 eggs, but the birds were rather on the small side. One does not like to see Leghorns at the end of a test weighing less than 4lbs. There were too many of these in this section, and such small size is not conducive to breeding vigorous stock. The pens were uneven judging by the weights.

It is interesting to note that among the Wyandottes 20 birds were broody more than three times, and that the average of these birds was 190 eggs each in the 48 weeks, or 12 per bird below that of the whole of the Wyandottes in the test. Two were broody eight times each, and their records were: 180, 164. One was broody seven times, and laid 166 eggs. Of the 76 birds which laid 200 or more eggs, 53 were never broody at all.

It may be of interest to note that the average weight of the 131 Wyandottes which completed the test, was 5lbs. 7½ozs. Of the 75 birds living at the finish, which had laid 200 eggs or more, there were 37 which weighed over 5lbs. 8ozs. These 37 birds laid 8,388 eggs, an average of 226.16 per bird, of which 921 were second grade. Of the 38 weighing 5lbs. 8ozs. or under, the number of eggs laid was 8,708, an average of 229 per bird, but the number of second grade eggs was considerably higher—2,405. Of these 11 birds laid over 100 second grade eggs, as against three of the heavier birds. The heaviest bird in the test weighed 9lbs., and laid 199 eggs, only one of which was second grade. There were two Wyandottes weighing under 4lbs., laying 135 eggs, of which 108 were second grade, and 242, of which 220 were second grade. Six Wyandottes weighed 4lbs. each at the end of the test. They laid 1,065 eggs, of which 730 were second grade. These figures indicate the importance of maintaining size of body, if we are to get size of egg, and what is of more importance, vigorous stock. It was noticeable that 47 of the Wyandottes did not exceeds 5lbs. in weight at the end of the test, and we maintain that this is too small; that at least another ½lb. is necessary if we are to breed vigorous stock, and get size of egg. The mortality from ovarian trouble, especially amongst the Leghorns, was unduly high. We know that Mr. J. N. Leigh makes the same comment in his report of the Bentley Test.

The Ministry are to be congratulated on this report, which is very comprehensive. It should be added that from January 1st to the closing date, all eggs weighing less than 2ozs. were regarded as second grade, eggs weighing less than 1oz. 10 drams were not counted.

THE L_2 FACTOR.

By G. C. HESELTINE.

(*Continued from Page* 69).

In my last contribution on this subject I endeavoured to show what L2 meant, and that the work of Pearl cannot with safety be accepted as applying to any birds other than those he worked upon in so far as the actual figures and the particular mode of inheritance of the factors is concerned. But, as I pointed out, this does not mean that the work is valueless and cannot be used to practical advantage by breeders. We can use it to considerable advantage if we recognise its limitations. The purpose of the present article is to examine the work with a view to obtaining from it some reliable information which will help us to breed better layers.

In the first place it is clear that there are such things, genetically considered, as good layers and bad layers. This is to say, under identical environmental conditions some birds will lay well, and others badly, or not at all. It is also clear from general experience, as well as from the work of Pearl, Hurst, Goodale and other investigators that good layers are bred from good layers (though a few bad ones are bred also from good layers), and that bad layers almost invariably breed bad layers. For our purpose we can consider our birds to be good and bad layers, because, in practice, I think it is very rare to find a bird in a "laying strain"—one might almost say in a laying breed—which is a real zero bird, laying no eggs at all in the winter. I mean, of course, a bird hatched at the normal time and normally reared and cared for. A zero winter record, which is due to immaturity, lack of the necessary food, or physical defect, is not due to inheritance, and therefore not considered here. We must think only of birds which are given every chance, so to speak, and then lay no eggs in the winter. It is my opinion that these birds are very rare amongst, say, Leghorns, Wyandottes, Orpingtons, Rocks, Rhode Island Reds, Sussex, etc., particularly in laying strains. Therefore we need not, for practical purposes, consider zero birds here, but, as we do get good and bad layers, we must concern ourselves with these. Now what are we to consider good and bad layers? I think it may be fairly assumed that a bird which lays over 50 per cent. in the winter is a good layer, not exceptionally good, of course, but still profitable, and therefore good enough to keep and good enough to reproduce; and it may also be fairly assumed that a bird which lays under 25 per cent. in the winter under normal conditions is a dud—certainly unprofitable, and therefore to be avoided.

Now there are a number which will lie between 25 per cent. and 50 per cent., but these we will consider later. If you accept the above classification of good and bad layers, roughly speaking, it is interesting to note how that classification compares with some of the findings in Pearl's work. For example, in Barred Plymouth Rocks the average for all the birds in the "under 30 eggs class" (excluding zero birds)—that is, birds carrying the L1 factor—was 15.61; we must regard the "under 30 eggs" as equivalent to my "under 25 per cent." above since **Pearl took the records over four winter months** and not three, as we do. Thus the average for the birds in "under 25 per cent." class was well under 25 per cent., so we are fairly safe in using 25 per cent. as a line to divide off the duds, and it is worthy of note that in Pearl's results there are remarkably few birds around the border line—they are as a rule good or definitely bad. On the other side we find that in the over 30 class (and any over 50 per cent. birds will come within that class), that is birds which, according to Pearl, carried both the L1 and L2 factors, the average over three years was 50.77, the figures for each year:—1908-09, 54.16; 1909-10, 47.57; 1910-11, 50.58, a very constant result in view of the nature of the investigations and the susceptibility of the records to the effect of variation in the winter's feeding, etc. The figure 50.77 corresponds to rather less than 50 per cent., so that it approaches very nearly to the S.P.B.A. standard of 40 eggs in 90 days, and I think it is clear that in taking a figure which is above the average found by Pearl we are fairly sure of taking only high-fecund birds. We almost certainly exclude low-fecund birds, those in the "under 30 class." It cannot be too often emphasised that when winter trap-nest records are discussed it should always be on the clear understanding that they are obtained under conditions which cannot in any sense be regarded as "forcing." As to what constitutes "normal" and "forcing" conditions for the purpose of obtaining records which are intended to be used as an indication of the presence of genetic factors is a question far too wide for discussion here and must be dealt with separately, but since it has such an important effect on the results of trap-nest tests it is necessary to make mention of it.

It will, therefore, be seen that the work of Pearl offers **some** confirmation of the action of the S.P.B.A. in fixing standard minimum winter record at 40 eggs in 90 days, and we are "on the safe side," though we cannot say more than that.

With regard to the question of the mode of inheritance since Pearl says the factor determining high fecundity is sex-linked in the case of his birds, and others say it is not sex-linked with other breeds, we must leave the question open for the present, and not only require that the male must carry the factor for high fecundity to give his daughters a chance of inheriting it, but also we must insist on the female carrying the factor. If the factor were definitely sex-linked we should be able to produce good laying pullets every time from poor laying hens by using a cockerel carrying the high-fecundity factor, and high-fecundity females would only be absolutely necessary for breeding cockerels for stock. As there is a doubt in the matter, we must, "to be on the safe side," again use only high-fecund males and high-fecund females, for then the progeny stands a very fair chance of inheriting the high-fecundity factor.

In the course of his paper Pearl showed that certain birds whose records were on the border line of 30 eggs could be definitely placed in the upper or lower category, although their actual records did not place them there. For instance, he showed that in some cases where a bird had laid just under 30 eggs it did so under difficulties, and would clearly under normal conditions have laid many more, and certainly enough to place it in the over 30 category.

Thus it is clear that a bird may, in certain circumstances, carry factors which her record does not show, and conversely (as in the case of birds forced) she may appear to carry factors which she actually does not carry. In other words, **the record is not the whole story,** and things affecting the bird's output either adversely or advantageously must be recorded as well as the number of eggs, and, if serious, taken into consideration when appraising the value of the record. It must be understood that this is a **very** dangerous proceeding, scientifically speaking, in other than expert hands, and therefore to be on the safe side we should not allow consideration of adverse conditions to permit a bird to qualify for a **higher** category than its record shows, though we should be very careful and ready to do the opposite thing—namely, allow consideration of circumstances to **lower** a bird's category. In this way we shall err on the safe side once more; though we may exclude good birds we shall not admit bad birds to the breeding pens. When considering the question of the records of young stock as a test of what their parents will breed, we may, and indeed must, be equally fair both ways, but, here again, "when in doubt, wash out." It may sound good and feel good to get a flattering result, but it means living in a fool's paradise. The people who get, or think they get, 100 per cent. hatches and a plethora of 300-eggers may delude themselves and sometimes the public for a while, but the awakening, when it comes, is very rude indeed, and the waking vision may easily be of the broker's man.

These three points, the numerical value of the winter record, the necessity of both the male and female carrying the high-fecundity factor, and the necessity of treating the records obtained with proper caution, are all sound since they are not contradictory of any of the scientific investigations which have been done on this subject, and the first and the last points have the definite support of the work of Pearl.

I feel bound to add, since so much must be taken for granted when writing on a subject which cannot be treated in a strictly scientific manner if it is to be intelligible to my readers, that there is a danger of valuing the trap-nest record too highly when choosing birds for a breeding pen. Of equal importance with the possession of the high-fecundity factor is the possession of the power to hand it on to stock which will be sound enough to profit by it and pass it on in turn, and therefore type, stamina, size of egg, etc., must be kept well in mind, and deficiencies in these respects must never be passed over on the strength of a few extra eggs on the record. So far there is no evidence that a bird laying 90 eggs in 90 winter days will breed, or is capable of breeding, better laying stock than a bird with a record of 50 eggs in 90 days, other things being equal.

Modern Poultry Feeding.

By TOM NEWMAN.

ANIMAL FOODS AND BY-PRODUCTS.

MILK.—It is quite unnecessary to emphasise the value of whole milk. We know it to be the most valuable of all foods; one need only say that owing to its high price it can rarely be used economically for poultry, and mention that whole milk sometimes causes digestive trouble with young chicks. It is rich in the Vitamin "A," its protein is of the highest value, and its mineral content is better than that of any other food.

Analysis :—Protein, 3.5; Carbohydrates, 4.9; Fat, 3.7; Ash, 0.7.

SKIMMED MILK has been consistently recommended in these columns as a most valuable food for chicks. As has been repeatedly stated, it is almost essential for the healthy and vigorous development of the young chick. Every effort should be made to give either skim or buttermilk for at least the first six weeks of the chick's life, either liquid or dry. While one cannot make a definite statement, their appears reason to believe that the beneficial effects of milk are not so great with growing stock after the age of three months is reached, and that it is not economical to feed after that age, except to breeding stock. That it has a pronounced effect on the hatchability of the egg, and the vigour of the chicks hatched, no one who has compared results with breeding stock given other forms of animal protein will express the least doubt. The chief value of skimmed milk lies in its protein and ash content, there is nothing to equal it for building up muscle and frame for young stock. While whole milk is rich in the Vitamin "A" skimmed milk is deficient in this respect; but that need not worry us, as we have plenty of other sources for this vitamin—for example, yellow maize meal, and all the green foods. Dried skimmed milk has given results in every respect equal to dried buttermilk. Appended are analysis of both the liquid and the dried :—

LIQUID :—Protein, 3.8; Carbohydrates, 4.6; Ash, 0.8; Fats, 0.8.

SEPARATED MILK :—Protein, 3.8; Carbohydrates, 4.0; Fats, 1.1; Ash, 0.7.

DRIED SKIMMED MILK :—Protein, 36.6; Carbohydrates, 25.8; Ash, 25.1; Fats, 4.2.

BUTTERMILK in the liquid form differs very little from skimmed milk in composition, and, as mentioned above, tests have shown that results are about equal. It was used with good effect in the Wellingham experiments, the results obtained there were undoubtedly due to the high percentage of milk used than to any other factor. Analysis:—

LIQUID :—Protein, 3.6; Carbohydrates, 5.0; Ash, 0.7; Fats, 0.1.

DRIED :—Protein, 31.2; Carbohydrates, 41.8; Ash, 9.0; Fats, 6.3.

In the dried state it will be seen the advantage is with the skimmed milk, owing to its better protein and higher mineral content.

WHEY has about half the value of skimmed milk. It is much more watery in its composition, containing only about 6.6 per cent. dry matter. In the manufacture of cheese practically all the casein and most of the fat go into the cheese, leaving the milk sugar, the albumin and a large part of the ash.

Analysis :—Protein, 0.9; Carbohydrates, 4.9; Ash, 0.8; Fats, 0.2.

The relation between the composition of milk and the rate of growth is of extreme interest. In their analysis of different kinds of milk research workers have noted the striking relationship between the rate at which different species of animals grow, and the amount of mineral matter and protein contained in the milk :—

Species.	Time required to Double Weight.	Protein.	Lime in Milk	Phosphoric Acid.	Total Ash.
Human ...	180 days	1.6	0.03	0.05	0.20
Horse ...	60 ,,	2.0	0.12	0.13	0.40
Cow ...	47 ,,	3.5	0.16	0.20	0.70
Sheep ...	15 ,,	4.9	0.25	0.29	0.84
Pig ...	14 ,,	5.2	0.25	0.31	0.80
Dog ...	9 ,,	7.4	0.45	0.51	1.33
Rabbit ...	6 ,,	14.4	0.89	0.99	2.50

According to more recent data the young pig may double its weight in 8 to 10 days. These tables are by Henry and Morrison. Although they have some significance, there must be other factors which are not mentioned which would account for this different rate of development.

In a comparison of the rate of growth of young animals on rich and poor milk, Beach fed calves, pigs, and lambs on skimmed milk, ordinary milk containing 3 to 3.5 per cent. fat, and rich milk containing 5.1 to 5.7 per cent. fat. In every case milk rich in fat was less valuable per lb. of dry matter, fat included, than milk poor in fat, or EVEN SKIMMED MILK. This is rather surprising in view of the importance attached to the

Vitamin "A" as a factor in healthy development, skimmed milk being as before mentioned deficient in this vitamin, while whole milk is rich in it.

SEMI-SOLID BUTTERMILK.—This is used in the States, and is much advertised there for poultry-feeding. Recently it has been imported to this country, and some is now on offer; apparently it is not equal in value to a good sample of meat meal, and at the price one cannot regard it as an economic food. It is produced by evaporating buttermilk in a partial vacuum until it is condensed to one-third or one-fourth of its original volume. It is of paste-like consistency and is sold in barrels. Over 60 per cent. of it is water, its protein content is 13 to 15 per cent. It has considerably less nutritive value than either skimmed milk or dried buttermilk, and would not compare favourably with either a good sample of meat or fish meal.

EFFECTS OF DRUGS.

By Capt. H. LEENEY, M.R.C.V.S., M.S.A., A.P.S

Among the vegetable poisons suspected of causing abortion in quadrupeds is ergot. Ergotised grasses and cereals affected with the sclerotium of Claviceps purpurea are often abundant in some pastures, as much as one pound has been taken from 100lbs. of hay. Rye is the plant it most prefers, but will accommodate itself to almost any sort of corn. The only experiment on record with this drug's action on fowls is one in which 2½ drams was given as a single dose, and had no effects. One large dose of lead will not produce the palsy of painters, whose carelessness leads to painter's colic, and the wrist paralysis, but frequent minute doses we know does so. Feeding experiments on small animals with repeated small doses of ergot has caused death of the tips of the ears and of other extremities, a dry gangrene, as it is called, and comparable to the falling off of the tails of little pigs. The action of ergot on the uterine organs of quadrupeds has produced abortion experimentally, and I have often wondered whether the many cases of dead yolks clinging to the ovaries of fowls may not be caused by this fungus. Here, again, we want a long series of experiments carried out, and with the genuine article, for it unfortunately happened that the chief experiments recorded in veterinary annals was with a base imitation bought in an Indian bazaar, and the whole series were useless.

Sulphate of iron is one of the most valuable and cheap of the iron salts, and everywhere obtainable. It is easily soluble in water, and a slightly ferruginous taste is not objected to by poultry. It has a distinctly deterrent effect upon the fungous diseases which play so important a part in fowls, and it is, therefore, well that it should be known that a grain daily is a safe tonic and blood builder, and that 30 grains is not a poisonous dose when given as an experimental one. One or two grains is as much as a fowl can profit by, and where a blood builder is required for anaemic birds showing pallor of the head ornaments, a solution of about a dram to the gallon of drinking water is a convenient method of administration.

Ipecacuanha, the compound power of the British Pharmacopaeia, is an excellent remedy for fowls with a sticky mucus about the nostrils and a chaketing cough, and may be given in five grain doses, mixed with the evening feed, as it has been proved that of the single drug itself 20 to 40 grains is not poisonous; 60 grains makes them ill, and anything like double that dose is a lethal one. In small doses it loosens the phlegm, and may very well be alternated with the sulphate of iron or copper in birds disposed to chronic cough (chackets).

Epsom salts or sulphate of magnesium is one of the most valuable and least costly of the poultryman's materia medica, and it is given for quite different purposes, and, therefore, in greatly varying doses. A dram or sixty grains will effect moderate purging if given in an ounce of water as a drench. Twice the amount is liable to result in prostration and collapse or death, but it should be said here that the action will largely depend upon the quantity of water in which it is administered. The more water the greater the purgation. Anyone may prove this on himself by taking a teaspoonful or so in a tumbler full of hot water on one occasion, and three or four times that amount in as little water as will dissolve it. If then some food of a constipating kind has been given, or constipation is found among fowls from other causes, a dram will be found to act better than what has been referred to as a Mussolinian dose of castor oil. The latter nauseates, is too viscid for convenient administration, and is apt to be shaken on to the nurse giving it. I don't like it for birds, but the majority of people sending subjects for post-mortem examination state that they have administered a teaspoonful or so, but the bird died.

Readers of my notes will have observed that I often recommend small doses, such as 15 to 20 grains to a flock, from which members have died of apoplexy, from congested or fatty liver, or such as are oppressed with great deposits of fat within. The reason for advising such treatment is that it causes a diversion of blood from the brain, liver, etc., where it is dangerous, to the bowels where it will wash out the contents and lower blood pressure quickly. More especially will this desired result be obtained if a fast is first prescribed. Sulphate of magnesia and the sister salt of sodium are excellent alternatives, given in very small doses, such as five grains daily, the latter being specially recommended where joint swelling and other evidence of gout is present, or rheumatism. Both these diseases are on the increase, owing to the intensive system, which makes fowls like the "three-bottle" men who could not eliminate their waste products. One may force the pace, if giving these eliminants quite regularly, as does the highest animal (?) in order to indulge in banquets without adequate punishment afterwards. Among the tapeworm remedies is male fern, and of this fowls are greatly tolerant, 70 drops having no ill-effect on the subject experimented upon, but only one very nearly succumbed to two drams of the fluid extract.

Phosphorous poisoning is usually traceable to rats having carried it in baits, and abandoned them under suspicion of "not being of the nature and quality demanded of" the rat. A serious loss from phosphorus is recorded from birds eating the debris after a firework display when the toxic substance became mixed with gravel.

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

INCUBATION.

I have had several lots of eggs sent me this week which have failed to hatch, the senders have been puzzled as to the reason, and it is not always easy to tell them. Take the first case, a dozen eggs were sent, eleven of these had fully-developed chicks, just ready to break the shell, the hatch had been a very bad one. But why had the chicks developed so well to this stage, and why had they not hatched? There was no record of the temperature going wrong, they had not dried down too rapidly, the membrane was moist. I cannot say it was excess of moisture; from the type of incubator used it was impossible to impute the cause to a stagnant atmosphere. Some years ago, when living in the Thames Valley, very close to the river, I got with my hot-water incubators a very high percentage of dead-in-shell, generally the chicks were just ready to break through. I tried every possible thing, not putting water in the trays until the nineteenth day even, but there was very little improvement. I then bought hot-air machines, and had no further trouble, the hatches being normal in every respect; that was before the days that hot-air machines had moisture devices fitted. That doesn't solve the first problem, and I must confess myself beaten; the fertility was very high, the eggs perfect specimens. There is no reason to believe the stock was in any way to blame. The second lot was easy. Here the stock were at fault, as nearly three-fourths of the eggs were addled, and only one had survived to the ninth day. These were Sussex, and there is reason to believe the hens were too fat. In the other case most of the chicks had died about the tenth day. I suggested the germs had been weakened by too low a temperature at the start, and this proved to be correct. The thermometer when tested was found not to be registering correctly.

I note in a contemporary that Professor Wieninger, of Vienna, has discovered that if the temperature of a hen-incubated egg is taken during the first two days it will be found to be 100 degrees, and that in an incubator, with a suspended thermometer registering 103 degrees, it is only 98. The conclusion arrived at is that the temperature should be 105 degrees during the first three days. The Professor is very late in the field, over five years ago I drew attention to this fact in "Eggs," and recommended a temperature of 105 degrees for the first week, and mentioned it in a paper I read on incubation at the Harper-Adams Conference in 1920 or 1921. As usual, "Eggs" always takes the lead.

Will readers of the Register kindly note that Mr. F. W. Wheeler's advertisement, inadvertently omitted from the Index, is to be found on page xlii. Also that the Breeds he keeps are White Wyandottes, White Leghorns, Buff Leghorns, and White La Bresse.

Mr. Hanson's Scheme— the Next Step.

At a meeting held in London of Representatives of the Poultry Press, and others, the Scheme for the co-operative disposal of surplus stock, as proposed by Mr. Hanson, was unanimously adopted in principle, and a Committee consisting of the following members was appointed:—

Mr. S. G. Hanson, Basingstoke.
Mr. P. Hedworth Foulkes, Leckhampstead, Newbury.
Colonel F. G. Skipwith, Ampthill, Beds.
Captain A. L. Hunt, Churt, Surrey.
Mr. Edmund Scholes, Campden, Glos.

This Committee has now got to work, and has had expert opinion and made enquiries in various markets as to the possibility of the disposal of surplus cockerels, old hens, and other products of poultry-keepers.

The Committee has come to the conclusion that, provided sufficient support is forthcoming from poultry-keepers in this country, there is every prospect of the scheme as suggested by Mr. Hanson proving a financial success.

It is proposed to form a Company, to be run on Co-operative lines, under the suggested title of "POULTRY PRODUCTS, LTD.," and steps have been taken to secure a site in a poultry-raising area, with railway facilities to all parts of the kingdom, and within easy access of London.

It has been decided that the necessary capital shall be raised by means of £1 shares, and it is suggested that members should subscribe on the basis of £1 per 100 head of adult stock.

Thus the poultry-keeper with 1,000 birds would contribute £10, and others in like proportion to their stock of birds.

It is obvious that the larger the capital, the greater is the assured success of the scheme.

This station will receive birds from members to fatten or otherwise dispose of them under expert direction, and the Committee have an option on the services of an expert with intimate knowledge of the necessary essentials, i.e., the dead poultry market and factory organisation.

A suggested basis of working for the scheme will be:—

(a) To make an initial payment equal to the current market price now obtained for surplus live stock.

(b) To make a further substantial payment for such stock to the members when the accounts are made up for the season.

In order that the Committee may take the initial steps which are necessary for the formation of the Station, it is essential that supporters of the scheme should give some indication of the capital, and the supply of birds which will be available, as well as the times of the year members would wish to dispose of their surplus stock.

Although upwards of 1,000 poultry-keepers have written, not only endorsing the scheme, but offering to take shares in the proposed undertaking, will these, and all others willing to support, fill in the particulars asked for below, and post not later than TUESDAY, 19th FEBRUARY, to:—

Mr. Edmund Scholes,
Leysbourne,
Campden, Glos.

In addition to the disposal and utilisation of surplus stock, it is proposed to explore markets for other products which have hitherto been neglected, co-operatively, on the farm.

POINTS TO REMEMBER.

1. All poultry-keepers who believe that more can be obtained for their Surplus Stock by a CO-OPERATIVE and EFFICIENTLY MANAGED Central Depot should join this National Scheme.

2. It is a fact that there is no possible hope of obtaining better prices either for LIGHT or HEAVY breeds under the present method of disposal.

3. Provision is made financially for ALL CLASSES of poultry-keepers to join the Scheme.

4. The more capital promised assures the greater success.

5. Co-operation is the ONLY means of beating the foreigner at his own game.

Please cut out the following form and post before TUESDAY, 19th FEBRUARY, to the address above.

FORM.

NAME AND ADDRESS: ____________________

____

____

(Write clearly, please.)

1. If you are prepared to subscribe on the basis of £1 per 100 head of adult stock, kindly state the number of such stock held on 1st January, 1924. ____________________

2. Should a method, other than the above, be proposed, how many £1 shares would you be prepared to take up? ____________________

3. What number of birds will you (approximately) have for disposal this year, i.e., surplus cockerels, and old hens?

Surplus Cockerels—Light Breeds ________
Heavy Breeds ________
Old Hens ________
Other products:
(Ducks, Geese, etc.) ________

4. How many weeks would your deliveries of **surplus cockerels only** be spread over? ____________________

5. What months would these include? ________

(The above information will be treated as **strictly confidential** by the Committee.)

Do not send any remittances; these will be asked for later when a prospectus is issued.

EGG-LAYING TEST.

THE GLOUCESTERSHIRE REPORT.

A STEADILY INCREASED YIELD.

The following is the report on the Gloucestershire Laying Test (under the supervision of Mr. L. G. Price, County Instructor in Poultry Keeping), for the third month ended 28th December:—

The weather during this period has been somewhat unfavourable, mainly wet and cold, and it is pleasing to note that, in spite of this, the egg yield has steadily increased. For this month 3,771 pullet eggs have been collected, giving a total of 10,518 for the three months, an average of 34.6 per bird. A notable feature is the shortness of the period in which a number of birds came through the moult during the first and second months of the Test. The health of the flock is exceptionally good.

SECTION A.—LIGHT BREED (Professional).

(Five birds constitute a pen).

Owner.	Points Awarded.	Grade. A.	B.	C.
G. B. Metcalfe	1398	270	12	—
H. T. Godber	1165	221	15	1
J. L. Brown	1129	213	16	—
Major G. Dugdale	1066	210	4	—
Miss H. Baylis	1060	184	35	—
Coaley P.F., Ltd.	1033	189	22	2
Sherborne Park P.F.	1022	198	8	1
Hinton P.F.	1009	197	6	—
F. A. Welch	968	164	37	1
R. Gray	952	184	8	—
J. G. Herbert	890	138	50	2
D. K. Nuttall	841	165	4	—
R. A. Arkwright	773	125	37	—
H. S. Hitch	761	137	19	—
Mrs. F. A. Merridew	755	143	10	—
V. Garrett	637	125	3	—
E. J. Stone	610	122	—	—
T. L. Davies	591	95	29	—
H. Drysdale Woodcock	586	114	4	—
N. L. Iles	543	87	27	—
W. R. Partridge	539	95	16	1
Mrs. W. Pearce Ellis	490	94	5	—
G. H. H. Simmons	400	80	—	—
M. C. Beale	347	67	3	—

All White Leghorns.

SECTION A.—HEAVY BREED (Professional).

Owner.	Breed.	Points.	Grade. A.	B.	C.
P. S. Beales	W.W.	1359	259	16	—
T. L. Davies	W.W.	1175	219	20	—
W. R. Partridge	W.W.	1148	224	7	—
P. M. Hinton	W.W.	1139	227	1	—
G. H. H. Simmons	W.W.	1129	221	6	—
H. W. Fowles	W.W.	1011	127	94	2
W. O. Garbutt	W.W.	931	139	59	—
J. Loder	W.W.	883	175	2	—
G. B. Metcalfe	R.I.R.	840	168	—	1
H. Drysdale Woodcock	W.W.	827	163	3	—
W. R. Partridge	B'Veld.	763	151	2	—
Major G. Dugdale	L.S.	657	121	13	—
Lord Sherborne	W.W.	643	127	2	—
B. Broom	R.I.R.	631	123	4	—
*M. C. Beale	R.I.R.	626	118	9	—
J. E. Boyd	R.I.R.	554	106	6	—
Miss J. C. Steward	R.I.R.	508	100	2	—
W. R. Partridge	R.I.R.	469	89	6	—
Mrs. R. Westbrook	W.W.	282	54	3	—

* One death.

SECTION B.—LIGHT BREED.

(Confined to owners of not more than 50 laying head).

Owner.	Points Awarded.	Grade. A.	B.	C.
Mrs. S. A. Brown	912	120	78	—
K. Wilson	729	141	6	—
*Mrs. A. Japp (B.L.)	686	130	9	—
J. D. Crewdson	564	104	11	—
J. A. Hall	543	107	2	—

All White Leghorns except position *

SECTION B.—HEAVY BREED.

(Confined to owners of not more than 50 laying head).

Owner	Breed.	Points.	Grade. A.	B.	C.
L. Grist	W.W.	1027	203	3	—
Maisemore School	W.W.	1025	201	5	—
Miss M. Lawrence	R.I.R.	740	140	10	—
C. G. Young	R.I.R.	360	60	15	—

SINGLE PEN SECTION. Section 1. White Leghorn.

Owner.	Points Awarded.	Grade. A.	B.	C.
Major G. Dugdale	370	74	—	—
Misses Ransford (2)	323	63	2	—
J E. Boyd	286	50	9	—
Misses Ransford (12)	275	55	—	—
L. Grist	261	21	39	1
Sherborne Park P.F. (8)	250	50	—	—
J. L. Brown	218	42	2	—
B. J. Greening	198	38	2	—
Misses Ransford (5)	175	35	—	—
Ditto (9)	135	23	5	—
Sherborne Park P.F. (3)	115	23	—	—
Miss H. Reed	58	10	2	—
F. W. Clifford	55	11	—	—

Section 2.—White Wyandotte.

Owner.	Points Awarded.	Grade. A.	B.	C.
Lord Sherborne	352	68	3	—
Philip Clapham	350	70	—	—
W. O. Garbutt (21)	325	61	5	—
W. R. Partridge (18)	320	64	—	—
Ditto (23)	310	62	—	—
Miss H. Baylis	309	61	1	—
W. O. Garbutt (25)	274	26	36	—
G. B. Metcalfe	266	50	4	—
Bruce Swanwick	215	39	5	—
S. Marston	200	40	—	—
R. F. Boyle	5	1	—	—

SECTION 3.—RHODE ISLAND RED.

Owner.	Points Awarded.	Grade. A.	B.	C.
F. W. Clifford	309	61	1	—
Miss M. Lawrence	265	53	—	—
Miss H. Reed	264	52	1	—
J. N. Horne	201	37	4	—
A. Daunton (44)	185	37	—	—
Ditto (2)	165	33	—	—
Tewkesbury Sen. School	5	1	—	—
S. Barnes	—	Moult.		

SECTION 4.—A.O.V. LIGHT BREED.

Owner	Breed.	Points.	Grade. A.	B.	C.
G. B. Metcalfe	B.L.	284	56	1	—
H. S. Hitch	Ancona	270	46	10	—
A. Daunton	Ancona	230	46	—	—
H. Lynden Lemon	B. La Bresse	223	43	2	—
M. A. Greenway	B.L.	110	22	—	—
L. Grist	Ancona	95	19	—	—

SECTION 5.—A.O.V. HEAVY BREED.

Owner.	Breed.	Points.	Grade. A.	B.	C.
Major G. Dugdale	L.S.	375	75	—	—
Mrs. E. Weinholt	Aus. Orp.	304	60	1	—
Miss M. Lawrence	B'Veld	275	55	—	—
J. L. Brown	L.S.	250	50	—	—
F. R. Welch	L.S.	220	44	—	—
Miss H. Reed	L.S.	214	30	16	—

SECTION 6.—DUCKS.

Owner.	Breed.	No. of Eggs.	Test Score.	Under W'ght
J. N. Horne	W.R.	53	53	—
W. R. Partridge	W.R.	50	50	—
Mrs. E. Weinholt	K.C.	52	48	4
Major G. Dugdale	K.C.	42	42	—
Mrs. A. Japp	W.R.	39	39	—
W. R. Partridge	W.R.	36	36	—
C. G. Young	W.R.	28	28	—
Sherborne Park P.F.	W.R.	17	17	—
F. Poile	W.R.	10	10	—
Miss M. Lawrence	K.C.	5	5	—
Sherborne Park P.F.	K.C.	1	1	—

No. 7 has not yet commenced to lay.

PEN DUCK SECTION. Four Ducks to the pen .

Report for the Second Month ended 14th December, 1923.

Owner.	Breed.	No. of Eggs.	Test Score.	Under W'ght
Major G. Dugdale	K.C.	122	121	1
Bradley Agri. School ...	K.C.	85	85	—
D. C. Herbert	K.C.	69	67	2
Sherborne Park P.F. ...	W.R.	63	62	1
F. L. Walters	W.R.	56	56	—
G. H. H. Simmons	K.C.	48	48	—
Sherborne Park P.F. ...	K.C.	47	45	2
B. Broom	W.R.	36	36	—
W. R. Partridge	W.R.	30	30	—
H. H. Gill	W.R.	29	29	—
Miss M. Lawrence	K.C.	29	28	1
Hinton P.F.	W.R.	24	24	—
Miss H. Baylis	W.R.	13	13	—
Coaley P.F., Ltd.	Coaley F.	10	10	—

(Signed) R. A. and A. M. JOHNSON.
The Cotswold Poultry Farm, Chalford.
H. S. WRIGHT, Hon. Secretary.
Shire Hall, Gloucester.

EAST ANGLIAN EGG-LAYING TEST, 1923-1924.

(OPEN TO GREAT BRITAIN).

Report for Third Month, 12th December, 1923, to 8th January, 1924.

The leading pens at the end of the third month of the above test, which is organised by the North Essex Branch of the N.U.P.S., are as follows:—

SECTION I.—WHITE LEGHORNS.

1.	Birmingham Industrial Co-operative Society, Ltd. P.F.	24	21	—	176	175
2.	Clayton, J. W.	25	43	10	229	169
3.	Dale Egg Farm	9	1	1	146	130

SECTION II.—ANY OTHER NON-SITTING BREED.

1.	Reed, Dr. R. B. (Ancona)	4	23	10	201	144
2.	Fearon, E. (Black Leg.)..	14	43	2	168	143
3.	Lloyd-George R. (Ancona)	22	25	2	131	127

SECTION III.—WHITE WYANDOTTES.

1.	Crabtree, W.	26	40	1	251	224
2.	Greenall, S. and T. ...	14	35	—	189	186
3.	Rodger, E.	11	18	5	191	181

SECTION IV.—RHODE ISLAND RED.

1.	Turner, H.	15	23	2	152	138
2.	Fearon, E.	22	29	1	121	114
3.	Stewart and Allen ...	56	—	—	96	96

SECTION V.—ANY OTHER SITTING BREED.

1.	Smith, A. Alborough (L.S.)	26	6	—	163	162
2.	Thornlea P.F. (L.S.) ...	35	21	—	115	115
3.	White House P.F. (L.S.) .	3	35	5	110	101

SECTION VI.—ANY VARIETY LIGHT BREED (AMATEUR).

1.	Aitchison, T. H. (W.L.) ...	13	9	—	48	47
2.	Farrant, H. (W.L.) ...	4	5	11	57	32
3.	Jackson, Miss R. M. (Noire-du-Berry) ...	—	1	—	24	24

SECTION VII.—ANY VARIETY HEAVY BREED (AMATEUR).

1.	Atkins, Mrs. W. F. (R.I.R.)	23	5	—	111	111
2.	Laws, F. P. (W.W.) ...	2	17	1	98	70
3.	Atkins, Mrs. W. F. (W.W.)	32	1	—	65	65

(Five pullets comprise a pen in Sections I—V. Two pullets Sections VI. and VII.).

W. T. WILLIAMS, Hon. Sec.
" Millfields," Rayne, Essex.

CARNFORTH INTERNATIONAL LAYING TEST.

THE FOLLOWING IS A LIST OF ALL PRIZE WINNERS.

Three Birds constitute a pen.

Championship Cup for best pen in all sections, awarded to Pen 47. Black Leghorns—Owner, Mr. George, Harling, Sandside, Westmorland.

Grade.			
1st.	2nd.	Total Eggs.	Value.
579	27	606	£4 13 1¼.

Section 1.—White Leghorns.

1st Prize, Gold Medal. Pen 20, Douglas Ann, Hellingley, Sussex.

Grade.			
1st.	2nd.	Total Eggs.	Value.
504	93	597	£4 12 10½.

2nd Prize, Silver Medal. Pen 39, M. Mason, Russel Road, Carnforth.

1st.	2nd.	Total Eggs.	Value.
537	42	569	£4 9 11¾.

3rd Prize, Bronze Medal. Pen 28, Mr. J. Nicholson, Keighley, Yorks.

1st.	2nd.	Total Eggs.	Value.
359	162	521	£3 18 8.

Section 2.—White Wyandottes.

1st Prize, Gold Medal. Pen 76, T. Wilson and Sons, Bare, Morecambe.

Grade.			
1st.	2nd.	Total Eggs.	Value.
339	224	563	£4 10 5½.

2nd Prize, Silver Medal. Pen 64, J. R. Cheeseman, New Hutton, Kendal.

1st.	2nd.	Total Eggs.	Value.
446	135	581	£4 9 4.

3rd Prize, Pen 58, Douglas Ann, Hellingley, Sussex.

1st.	2nd.	Total Eggs.	Value.
429	118	547	£4 8 7¾.

Section 3.—Any other variety.

1st Prize, Pen 47, G. Harling, Sandside, Westmorland.

Grade.			
1st.	2nd.	Total Eggs.	Value.
579	27	606	£4 13 1¼.

2nd Prize, Pen 54, M. Mason, Carnforth.

1st.	2nd.	Total Eggs.	Value.
438	145	583	£4 5 7¾.

3rd Prize, Pen 51, E. Richards, Moorgate, Kirby Lonsdale.

1st.	2nd.	Total Eggs.	Value.
317	154	471	£3 9 3¾.

THE LANCASHIRE UTILITY POULTRY SOCIETY.

INTERNATIONAL EGG-LAYING TEST, 1923-4.

Report of the Third Month—December 11th to January 7th, 1924.

The report for the month is on the whole a very satisfactory one, notwithstanding the winterly weather which prevailed throughout the month. Frost and snow and much rain has been experienced, which at times confined the birds to their quarters, and which affected the light more than the heavy breeds, causing them to lay less regularly.

The yield of eggs has been good and of a good size, 637 being laid on the first day and 580 on the last day, an average of over 50 per cent., or 14 per bird, including all birds which are in moult and others which are not in lay.

More birds have had to be treated for colds, etc., than formerly, and four birds have died during the month from tumours and other internal troubles.

The next visiting day will be on February 9th. from 2 to 4 o'clock, when competitors and the public can inspect the various pens competing.

SUMMARY OF LEADING PENS.

HEAVY BREEDS.—SECTION 2.—LARGE BREEDERS (10 Pullets).

Position.	Owner of Pen.	Pen Totals for month. Eggs.	Pen Totals for month. Points.	Pen Totals to date. Eggs.	Pen Totals to date. Points.
1.	Rodwell, R., Nelson	172	168	553	528
2.	Crabtree, W. Twiston	187	186	519	496
3.	Hull, J. R., Thornton-le-Fylde	161	178	445	469

LIGHT BREEDS.—SECTION 1.—LARGE BREEDERS (10 Pullets).

1.	Metcalfe, G. B., Lechlade	176	179	474	467
2.	Aspden, R H. Balladen	152	149	493	458
3.	Snowden, F., Cowling	126	127	448	432

HEAVY BREEDS.—SECTION 4.—SMALL BREEDERS (5 Pullets).

1.	Helm, J. E., Rossendale	93	97	302	306
2.	Greenall, S. & J., Carlton Scroop	93	98	257	261
3.	Purdie, J. & W., Lanark	108	106	271	259

LIGHT BREEDS.—SECTION 3.—SMALL BREEDERS (5 Pullets).

1.	Budd, C. F., Abergavenny	92	92	273	265
2.	Johnstone, Capt. E. B., Kingston H.	73	76	261	249
3.	Purdie, J. and W., Lanark	88	92	237	238

HEAVY BREEDS.—SECTION 6.—OPEN (Single Bird).

1.	Cook, R. N., Tarleton	21	25	51	58
2.	Rainford, J. Penwortham	21	23	50	54
3.	Wright, R., Kirkburton	19	21	46	50

LIGHT BREEDS.—SECTION 5.—OPEN (Single Bird).

1.	Wallis, A. V., Oxon	20	21	47	48
2.	Steele, Bros., Tocknith	18	19	45	46
3.	McCoomb, J. S., Bracknell	19	19	47	45

HEAVY BREEDS.—SECTION 8.—NOVICE BREEDERS (4 Pullets).

1.	Halsall, J. Newton	85	82	186	176
2.	Mills, R. Penwortham	65	66	172	170
3.	Hollins, C. H., Chorley	58	56	170	162

LIGHT BREEDS.—SECTION 7.—NOVICE BREEDERS (4 Pullets).

1.	Winward, W., Bamber Bridge	73	72	186	177
2.	Sharpe, T., Dumfrieshire	85	84	185	174
3.	McCoomb, J. S., Bracknell	70	71	169	165

EGG-LAYING TEST.

LANCASHIRE FEDERATION'S COMPETITION.

The report for the third month—December 16th to January 12th—in the Lancashire Federation of Utility Poultry Societies' 12 months' egg-laying competition has just been issued by the secretary, Mr. E. Collier. The light breeds are penned at Mr. H. Hayes' farm, Tottington, who reports all the birds are in good health with the exception of three, which have slight colds. Three Leghorns, Nos. 3, 45, and 82, have each laid an egg 3¼oz. weight, whilst Leghorn No. 158 has laid four eggs each under ½oz. This bird goes on the trap-nest two or three times a day. The heavy breeds are penned at Mr. W. Hamnett's farm, Blackpool, who reports all birds in good health and production slightly on the up grade. The total output in this section was 1,552 eggs, equal to 11.33 per bird, but deducting the 16 birds that have not laid during the month this average would be considerably increased. Twenty-four birds are affected with a neck moult, mostly Wyandottes. Sixteen birds have laid 20 eggs or over during the month, whilst several have laid 60 during the 12 weeks. The scoring is six points for first grade eggs of 1⅞oz. and 5 points for second grade eggs of 1¾oz. The positions are as follow, the figures showing the number of eggs and points respectively :—

LARGE BREEDERS' SECTIONS.

LIGHT BREEDS (Three Birds).—1, J. Shaw, 124, 621; 2, W. Barron, 109, 620; 3, R. Rodwell, 106, 595; 4, W. Braithwaite, 106, 583; 5, S. Street-Porter, 100, 573; 6, R. H. Aspden, 99, 538.

WHITE WYANDOTTES.—1, R. Rodwell, 153, 875; 2, W. Barron, 171, 867; 3, R. H. Aspden, 141, 846; 4, R. Moon and Son, 142, 837; 5, C. C. Humber, 139, 794; 6, H. Sutton, 138, 787.

A.O.V. HEAVY.—1, W. Wearden and Sons, R.I.R., 162, 971; 2, T. Braithwaite, R.I.R., 160; 864; 3, J. Rainford, R.I.R., 119, 666; 4, R. Green, R.I.R., 111, 664; 5, R. Moon and Son, R.I.R., 112, 658; 6, H. Sutton, R.I.R., 99, 555.

SMALL BREEDERS' SECTIONS (SINGLE BIRDS).

LIGHT BREEDS.—1, F. and H. Evans, 39, 222; 2, H. Tattersall, 29, 199; 3, J. Higson, 33, 190; 4, F. and H. Evans, 25, 145; 5, Mrs. J. A. Mellor, 24, 140; 6, J. Smith, 21, 126.

HEAVY BREEDS.—1, W. Fletcher, W.W., 62, 339; 2, S. B Lonsdale, W.W., 47, 265; 3, W. J. Swarbrick, W.W., 45, 249; 4, T. B. Price, L.S., 36, 215; 5, H. Bull, R.I.R., 34, 204; 6, A. H. Brain, W.W., 31, 186.

HANTS COUNTY LAYING TEST.

FARM INSTITUTE, SPARSHOLT.

Report for 3rd period ending January 15th., 1924.

The health of the birds has been good. In spite of weather conditions results have been fairly satisfactory :—

SECTION A.

Tem. Pos.	Owners' Name	Eggs laid. 1st Grade.	2nd Grade.	3rd month. Under weight	Total.	Eggs laid to date. 1st grade	2nd grade.	Under weight.	Totals.	Totals to count for test.	Breed.
1.	Mr. R. H. Hunter ...	26	20	2	48	29	48	8	85	77	W.L.
2.	Mr. D. W. Gunston ...	26	11	2	39	52	24	3	79	76	,,
3.	Mr. R. Mackenie ...	10	1	—	11	33	36	10	79	69	,,
4.	Lieut.-Col. Wailes ...	19	1	1	21	33	30	1	64	63	,,
5.	Mr. D. F. Lawrence ...	15	25	—	40	17	44	—	61	61	,,
6.	Barford P. Farm	13	25	1	39	16	41	1	58	56	Anconas

SECTION B.

Tem. Pos.	Owners' Name	Eggs laid. 1st Grade.	2nd Grade.	3rd month. Under weight	Total.	Eggs laid to date. 1st grade	2nd grade.	Under weight.	Total.	Totals to count for test.	Breed.
1.	Captain Harper ...	38	12	—	50	88	87	1	126	125	R.I.R.
2.	Mr. J. H. Thompson ...	10	41	—	51	43	79	2	124	122	W.W.
3.	Mrs. J. H. Drew ...	19	16	21	56	73	35	33	141	108	Buff Rock.
4.	Barford P. Farm ...	10	5	—	15	83	13	—	96	96	R.I.R.
5.	Mr. D. F. Lawrence ...	6	36	5	47	13	77	19	109	90	Lgt. Sx.
6.	Mr. S. Wilkinson ...	27	12	—	39	54	18	—	72	72	,,

HARPER-ADAMS' AGRICULTURAL COLLEGE LAYING TRIALS.

The following very interesting report we have taken from the "Utility Poultry Journal."—Complete and detailed tables for 1922-23. It is interesting to note that the cost of feeding for the 48 weeks work out at less than 2¼d. per bird. In view of the fact that the average number of eggs per bird was 178, this must be regarded as very satisfactory.

The final period of the 1922-23 Trials commenced on September 5th and ended on October 2nd.

During the period many birds have moulted but have remained in good health, being dispatched home in a good condition. Production continued good right up to the last in the Heavy Varieties; the Light Breeds in many cases were moulting. The general health throughout the Trials was satisfactory, although during the wet period bad colds were rather prevalent, and these had their effect on the records of the birds concerned. The general average of the birds is very interesting, the Wyandottes again leading.

Section 1 ...	480 Birds ...	186 Eggs per Bird ...	White Leghorns	48 weeks.
,, 2 ...	330 ,, ...	191 ,, ,, ,, ...	White Wyandottes ...	,,
,, 3 ...	258 ,, ...	179 ,, ,, ,, ...	Rhode Island Reds ...	,,
,, 4 ...	138 ,, ...	172 ,, ,, ,, ...	Light Sussex	,,
,, 5 ...	48 ,, ...	170 ,, ,, ,, ...	Rocks	,,
,, 6 ...	48 ,, ...	154 ,, ,, ,, ...	Columbian Wyandottes ...	,,
,, 7 ...	114 ,, ...	171 ,, ,, ,, ...	Black Leghorns	,,
,, 8 ...	48 ,, ...	166 ,, ,, ,, ...	Anconas	,,
,, 9 ...	42 ,, ...	174 ,, ,, ,, ...	Variety Light Breeds ...	,,
,, 10 ...	54 ,, ...	160 ,, ,, ,, ...	Variety Heavy Breeds ...	,,
Exhibition ...	48 ,, ...	162 ,, ,, ,, ...	Exhibition Variety	,,
Single Pens ...	74 ,, ...	192 ,, ,, ,, ...	Mixed Breeds	,,

The average over all the competing birds was 170 eggs in the 48 weeks. All the breeds have done justice to themselves. The Columbian Wyandottes, with the lowest average, have been kept more for exhibition than utility. They would quickly improve with their laying, if cockerels were used from recorded dams to mate up with the breeding pens. Broodiness is very prevalent with with this variety, although one or two strains are much less troublesome than the others.

The Single Pen Sections did very well for the 48 weeks. They would probably do much better if they were selected near laying and not actually laying; also it would be advisable to keep the birds by themselves for quite a month before sending them to Test. It would save a lot of them from worrying, and trying to get to their neighbours, once they used to being by themselves. They would settle down much quicker than the majority do under present conditions.

Feeding has not varied materially during the last period, the variety and weights of food used being set out in the following table :—

	Bran.	Fish meal	Sharps.	Sussex Ground Oats.	Maize meal	Alfalfa meal	Biscuit meal.	Yeast	Total.	Grain mixed	Total
(1888 Birds).	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
Amount of food consumed ...	154	224	3200	720	584	216	—	—	5098	6840	6840
Current price of food consumed	£0 7 6 per cwt	£0 17 3 per cwt	£0 9 6 per cwt	£0 14 0 per cwt	£0 11 0 per cwt	£0 15 6 per cwt	—	—	—	£0 10 4 per cwt	—

FINAL SUMMARY.

Sec.	No. of Pens.	12 months' Results. Weight. oz.	Eggs Grade A	Grade B	Total.	Value. £ s. d.	Totals for 12 months. Weight. oz.	Eggs. Grade A.	Grade B.	Total.	Value. £ s. d.
					SMALL FLOCK PENS.						
1	80	8169.5	3609	284	3893	34 7 5	182941.3	73404	15953	89357	637 10 11
2	85	8804.3	3661	616	4277	36 18 11	126784.	46338	16727	63065	453 10 5
3	43	6193.3	2702	263	2965	26 2 8	97199.3	39096	8239	47335	340 9 3
4	23	2309.5	1014	96	1110	9 16 7	48971.1	19864	3821	23685	172 14 3
5	8	635.7	282	20	302	2 13 8	17143.7	6963	1277	8240	59 10 11
6	8	670.	282	35	317	2 15 8	15168.	5814	1594	7408	53 18 9
7	19	1249.7	566	28	594	5 5 11	40106.4	17004	2528	19532	141 11 7
8	8	630.7	291	5	296	2 13 2	16629.4	6991	1011	8002	55 12 2
9	7	451.6	208	5	213	1 18 2	15257.	6499	822	7321	52 13 3
10	9	762.6	354	8	362	3 4 11	17788.2	7297	1299	8596	62 13 8
All the Birds	—	29878.1	12969	1360	14329	125 17 1	577989.	229270	53271	282541	2030 5 2
					EXHIBITION.						
	8	842.3	366	28	394	3 9 11	16204.6	6589	1197	7786	54 5 6
					SINGLE PENS.						
1	25	550.1	250	8	258	2 6 0	9969.	4145	691	4836	35 10 8
2	19	699.1	306	28	334	2 18 11	8234.2	3204	837	4041	30 6 5
3	9	165.3	74	—	74	0 13 3	3665.2	1608	93	1701	12 7 9
4	21	387.3	157	24	181	1 11 3	7670.4	2941	759	3700	26 19 3

SMALL FLOCK SECTION.

NUMBER OF BIRDS THAT LAID.

	260 & over.	240 to 259.	220 to 239.	200 to 219.	180 to 199.	160 to 179.	140 to 159.	0 to 139.	No record on a/c of death.	Total.
White Leghorns	2	12	70	102	104	96	68	79	26	560
White Wyandottes	4	13	46	75	84	62	40	41	20	385
Rhode Island Reds	—	9	19	57	61	60	46	40	9	301
Light Sussex	—	—	5	27	28	29	29	33	10	161
Rocks	—	3	1	3	11	14	6	18	—	56
Col. Wyandottes	—	—	3	3	7	5	11	24	3	56
Black Leghorns	—	—	4	23	28	28	13	29	8	133
Anconas	—	1	—	4	12	15	12	10	2	56
A.O.L. Breed	—	—	1	14	5	9	9	8	3	49
A.O.H. Breed	—	—	1	8	10	6	17	18	3	63
Exhibition	—	—	3	4	7	14	10	16	2	56
Total	7	38	153	320	257	338	261	316	86	1877

SINGLE PEN SECTION.

NUMBER OF BIRDS THAT LAID.

White Leghorn	—	3	2	8	6	4	1	1	1	26
White Wyandottes	2	4	3	2	4	2	2	—	1	20
A.O.L. Breed	—	—	—	3	3	2	—	1	2	11
A.O.H. Breed	—	1	—	4	4	7	2	3	—	21
Total	2	8	5	17	17	15	5	5	4	78

Correspondence.

BRODER STOVE CORROSION.

To the Editor of "Eggs."

Sir,—At this time of the year most poultry farmers are overhauling their incubators and brooders. Many who use anthracite stoves in connection with their hatching and rearing must be alarmed to note the extent to which these British-made stoves have deteriorated during the months in which they have been out of use.

Undoubtedly much of this deterioration, through corrosion, can be prevented by dissembling the stoves at the close of the incubating and brooding season, and carefully oiling them all over, but this treatment is not entirely satisfactory, and would not be necessary if suitable material were used in the manufacture of these appliances.

I certainly think manufacturers are much to blame for these bad-wearing qualities. I have, in my dwelling house, three anthracite stoves of French origin, which have been in use for the last nine years, and none of them ever show the least sign of the rust and corrosion which is already very noticeable in British-made brooder stoves, which I have had for a much shorter time. My house stoves never receive any special attention to prevent them from rusting.

During the war I went into dozens of French houses in which anthracite coal was burned, and none of the stoves showed any of the bad wearing qualities so apparent in the British article. On the contrary, French housewives are fond of these stoves, which are usually so well kept as to be almost ornamental.

It is up to British manufacturers of anthracite-burning stoves to tackle this problem of corrosion with a view to turning out appliances that will rival the foreign-made product in most resisting powers.

Failure to do this will eventually lead to their being forced by foreign competitors to abandon this side of their business.

Yours truly,
S. C. ATKINS.
Hermitage, Berks.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

"FLOCK AVERAGES."

To the Editor of "Eggs."

I think that your correspondent "E." and I are very much in agreement. Certainly I am with him that FOR INTERNAL STATISTICAL PURPOSES the method which "E" advocates is the soundest, as one does not wish to carry any birds which will not be profit-makers longer than necessary.

But this does not meet the difficulty which I have met, and which I suppose "E" would include under the heading of Advertisement. Customers often ask what is one's flock average in a certain breed; perhaps they are not so much concerned with what exceptional birds have done, but wish to be satisfied that the stock which they contemplate purchasing will give a good all-round average result. Here enters the necessity for a common formula as between different breeders.

The purchaser does not mind whether I adopt a method which is economical for my own purposes. He is not concerned with the birds which were turned out or as to the date when they were culled. He wants to know what record has been put up by the permanent flock. Hence the method which I put forward for discussion, and upon which I should appreciate further criticism by your other correspondent.

Yours faithfully,
HERBERT ROWNTREE.

I agree that my method is one for adoption combined with trap-nesting, which does not detract from the usefulness of flock averages.—H.R.

INCUBATION.

To the Editor of "Eggs."

Dear Sir,—Now that the hatching season is in full swing, may I give any of your readers, who are troubled by the dead-in-shell problem, the benefit of my experience in an experiment I have been trying with very satisfactory results.

As soon as the first egg chips I cover the eggs completely over with a square piece of woven woollen material. Quite a fine piece does so long as it is pure wool. This covering I sprinkle with boiling water before it goes into the box, and crumple it up in my hands so that it is just moist. I repeat this each time the egg drawer is open—i.e., morning and night.

By this means I have raised my hatching percentage from 70 per cent. to the neighbourhood of 80 per cent. But to my mind, more important than this increase, is the fact that there is none of that horrible drying up in the shell in the late hatches amongst the chicks. The last hatched is as comfortable as the first.

I am aware that as soon as the cloth goes in the tendency of the drawer is for the heat to fall and take a considerable time to rise. I counteract this by raising the lamp. It may take the hatch a little longer to finish, but I find that the result quite justifies this.

I do not wish to dogmatise on the whys and wherefores, which I leave to wiser and more experienced heads than mine, but merely wish to give our readers the result of practical experience. It would seem as if moist pressure on the eggs helps them more than merely being surrounded by moist air, which may get dried up through the entrance of the outside air through the ventilating holes.

Yours faithfully,

(Miss) M. BERKLEY.

P.S.—I should like to qualify the above statement by adding that I speak from my own experience only. In the hands of an unskilled operator, or possibly under different conditions to my own, the result might be disastrous, as in fact it was on one occasion whilst I was abroad last year, and I left the "stunt" to be tried by another hand! I did not begin to experiment myself until the important hatches were over. I should advise anyone who tries their hand at it to do the same.

It would be very interesting to hear if any other readers of "Eggs" have ever had any experience with the wet cloth trick.

FLOCK AVERAGES.

To the Editor of "Eggs."

Dear Mr. Newman,—A uniform system of calculating flock averages definitely examined and approved by the Society would, to my mind, have considerable advantages for advertising purposes from the point of view of the really honest breeder.

Hatching eggs are now sold from some of the large flocks which are said to have a certain flock average. How is this average arrived at? Or, again, catalogues reach us with entries like this:—"No. 2 Pen. Hens with year's record 170 to 220." What we want to know is, has such a pen a number of birds with records about 170 and, say, one or two good ones about 220—to make it look well, or is it a genuine pen of birds with records round about 200? A stated average for the pen calculated on an officially approved system would answer this question for us. Personally I prefer to state not only the maximum and minimum records of my hens but also the pen average. This lets a customer know more or less what he is buying.

No difficulty exists in calculating the average of a pen containing a definite number of birds, each with a definite record for a full year's laying; in fact, I know of only one method of arriving at the results.

The real difficulty arises when it is desired to obtain the average for the year for a flock of birds whose numbers may vary from month to month; and it is here that the adoption of a uniform method appears desirable.

The method in use here is not put forward as a perfect one, but rather with the idea of inviting criticism and of assisting, may be, in the evolution of a generally recognised and officially approved system of calculation.

A census is taken of the flock on the first of each month, and the percentage for the month is worked out, based on the average number of birds in the flock during the month. At the end of the year the monthly averages and percentages are added up and divided by 12. This gives the yearly average number of birds in flock and the yearly average percentage. I append a copy of the actual record of a flock of White Leghorns—originally 100—worked out for 1922-23 on this system:—

Month.	Average No. of Birds.	Total Eggs.	Monthly per cent.
November	100	1004	33.3
December	100	1450	46.7
January	100	1162	37.5 (colds)
February	100	1132	40.4
March	85½	1560	59.2
April	79	1687	71.2
May	78	1646	68.0
June	75	1408	62.6
July	73½	1373	60.7
August	75	1073	46.0
September	71	916	43.0
October	71	402	18.2

Average No. birds for year 84; Total Eggs, 14813;
Average per Month, 48.9.
48.9 per cent. of 365 = 178.85. Flock average for year.

If we divide the total number of eggs for the year by the average number of birds for the year (84) we arrive at a slightly different result—viz., 176.3.

Yours faithfully,

A. W. DISNEY-ROEBUCK.

Hoo Meavy, Yelverton, S. Devon.

Testimonials.

30, Pitt Street, Mexboro', Nr. Rotherham.

"Why, oh why, is the S.P.B.A. publication, 'Eggs,' not more widely advertised?

When I consider the type of information I have gleaned this last six weeks, after nearly five years of the other stuff, I feel that I ought to be able to claim damages against somebody for **lack of knowledge and time wasted.** There must be some others in the same boat as myself, too."

FRANCIS F. F. WALTON.

The Farm, Pulford, Nr. Wrexham.

"May I thank you for all the success I had during my two years of poultry-keeping under your valuable guidance. Had it not been for the paper 'Eggs' I should have been lost, as I had had no experience before. As it is I am able to show good profits. I have spoken to several people about your paper, and they have taken it with the usual success. Wishing your paper every success."

HENRY W. HUTCHINGS.

Norton Glebe, High Ongar, Essex.

"Kindly accept my best thanks for your Register, also the useful hints in both. Needless to say they have been our sheet anchor, and knock all other papers that I have come across sick."

K. WELDHEN.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Waroop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package. and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

C. M. B. (Worthing). Apparently your birds are putting on too much internal fat. This is rather difficult to avoid in old hens; but on no account should you give them maize, and the soft mash should be made of:—Middlings two parts ground oats one, barley meal one, mixed to a crumbly moist condition with sour skim milk, or, if the latter is not available, use half part meat meal. They should be fed on this twice daily, and in addition you might give them boiled rice or boiled wheat. This would give you a better quality flesh. Yes, the Red Sussex cock to Light Sussex hens ought to give you silver cockerels and buff or red pullets. This, of course, would give you white legs, and would also do away with the objectionable yellow skin.

B. E. L. (Winchester). This is a case where the breeding pen is at fault. In the eggs you send only one chick was, what might be called, dead-in-shell. The remainder had died before the tenth day. I imagine you will find the hens are in an over-fat condition. Of course I cannot say this definitely, but your feeding is altogether wrong. The proportion of potatoes you are using is far too high. I would advise you to cut this down by one-half, and in place of the maize meal add another two parts blues, and in place of the meat meal use meat and bone meal. I do not think the male bird is at fault, and as far as I can see there is nothing wrong with your running of the incubator, the real fact being that your feeding was so bad that there was nothing in it to allow the embryo to develop.

C. E. S. (St. Helens). I think it will be necessary for you to use moisture, but I would suggest that you do not do so until the fifteenth day. Take the first felt out on the nineteenth day and leave one in altogether. Do not let the chicks get into the nursery drawer; or, rather, do not let them stay there for any length of time. You will be wise to leave one felt in entirely, as a good deal of dead-in-shell is caused by the upward draught in these incubators.

B. R. H. (Ashted). I am afraid I cannot help you. The birds appear to be through the moult, and why they are not coming into lay it is impossible for me to say. Have you got them in an over-fat condition? Really it is a question for you to handle them, and see what is their bodily condition, rather than my being able to advise you. Their pullet average of 223 and 209 per pen was wonderfully good. My own impression is that they are most likely in an over-fat condition since the moult. Of course they will not eat a lot since they are not producing. It is, I find, a very common trouble for pullets to get into an over-fat condition immediately after moulting. That is all the advice I can give.

A. C. H. (Horncastle). Certainly your record of 18 to 20 eggs per day during the past two months from 170 birds is not encouraging; but you do not tell me how you have mixed the meals which you have been feeding, so that I cannot say whether you went wrong there. Your friend's idea of a balanced ration is not quite correct, as what he suggests is too fattening, and, further, is very expensive. You would do better with: Two parts "Egg-'em-on," one of Sussex ground oats, four of sharps, one of fish meal, and reserve two parts of bran to dry off the ingredients with. It would be very much better to scald these and cover them for about an hour before feeding. There is nothing to be gained by mixing with cold water. With regard to the grain feed, this should be: two parts each kibbled maize and wheat, and one of good white oats. If the Black Leghorn cockerel was penned with the birds seven days before incubating, the eggs would be suitable for hatching purposes. As the birds were hatched early in February you might safely use their eggs for incubation—that is, of course, providing the cockerel is well matured. The pullets, if hatched in February last, were rather late in coming into lay. Thanks for the addresses of friends to whom you would like us to send a specimen copy of "Eggs."

J. H. (Hockley Heath). Green cut bone can be used in place of any animal food, such as fish or meat meal, and in the same proportion in any of my formulas. The same remark applies to chicken formulas. Buttermilk mixed in wet mashes would be excellent, but it would be advisable not to use any other animal food.

F. F. (Wombwell). Your average of five eggs a day from 32 young pullets is entirely due to your method of feeding, and this would, to a very great extent, explain the cramp from which some are suffering. I would advise you to leave the laying meal out of the mash entirely, and make the mash of :—Two parts bran, four sharps, one each Sussex ground oats, Indian meal, and meat meal. The linseed dust is not necessary. If you use it reduce the meat meal to half a part, and use only half-part linseed dust. Give the birds plenty of scratching exercise. They should have 2½ ozs. of this mash weighed dry, if you feed as a wet mash, but if as a dry, it should be always before them, and the grain should be given in the litter. Do not scald the bran, but reserve it to dry off the remainder of the ingredients with.

J. W. (Barrow-in-Furness). Although I am in favour of the small unit, I think your proposal to build a series of houses, 12ft. x 6ft., with alternate runs, would be a mistake. In the first place it makes an increased capital outlay, and the labour would be too great. I would advise you to build the houses 20ft. x 12ft., or about that size. These would take up to 60 pullets, and in a flock of this size you ought to get quite good results. A house 12ft. x 6in. is really a bad size. There is not sufficient depth, and it does not offer efficient shelter during rough winter weather. We are sending you particulars of the S.P.B.A.

H. P. (Leeds). In reply to your letter *re* my statement, "never cross strains." I have certainly not given the whole game away by what I have said. It is simply that you are reading the whole thing too literally. In my reply to you on November 21st I gave you definite reasons why it was unwise to cross strains. When you asked me how to make a new strain, obviously such a thing was impossible without you did cross strains; but, in making a new strain by crossing, you would have to build it up. That is your first cross would result in a great variation in the records of the progeny, and that variation would continue for sometime until, by careful selection of individuals, you had put a stop to it. That would necessitate a certain amount of line-breeding. Then, as to my remark referring to the birds being built up by careful mating and blending of the best strains, again that does not give the game away. What I mean by crossing is to mate A. to B.—that would be a cross, and would cause the variation which we are anxious to avoid, but if I wish to introduce new blood into my strains, I should do so by buying females, mating them to my own males, continuing to do this until I had 75 per cent. of my own strain and 25 per cent. of the other. So that there would be a minimum of variation caused by such a mating. I hope I have made this clear. In the article to which you refer I state expressly that, if it is necessary to introduce new blood at any time, it should be on the female side, and that the progeny would be used for the mating in future years.

Champion (Abbotsham). Your mash is certainly expensive, and from that point of view I think I can improve upon it, although I do not suggest that the following will give better results, but at the least, it should equal them:—4cwt. bran, eight middlings, two Sussex ground oats, two maize meal, one fish or meat meal, and one soya bean meal. It is quite possible that if you had ovarian trouble you are eliminating this by not breeding from the affected birds. I do not think it is due to the composition of the mash. There is sometimes a tendency in the really heavy producer to weakness of the reproductive organs. I do not think climatic conditions would greatly effect this, although of course, it would affect production. I should breed from the April 1st hatched pullets when they were two years old, and also from their approved parents for another year.

F. E. (Manchester). The mash you send seems to be a very good one, and at 15s. 9d. cwt. good value for the money. Please refer to reply to "C. J. S.," Coventry, on page 69 of last week's "Eggs," in reference to a chick feed. Broad bran is quite suitable for chicks, and is far superior to ordinary bran.

Post-Mortems.

C. H. The Light Sussex "found dead in bed but of irreproachable character" and "present at roll-call the previous night" was nevertheless not exempt from the ills that flesh is heir to. She had the defects of her qualities, and had poured yolks into the uterus to the weight of over a pound, and distended the viscus so that it measured 4½ inches one way and seven the other, and occupied the major portion of the abdominal cavity. Those persons who talk about hens "laying inside," and who believe in absorption of them through the wrong side of the intestines, this and similar cases commented upon, are specially invited to reconsider their theory. Your idea of fortifying against the cold winds of an exposed situation is good up to a point, as foods have to be used in providing heat, but excess acts upon them as upon the proverbial alderman and great depositions of adipose tissue in the lower portion of the epigastrium. One would grieve to lead you from that lighter vein which illumines a dull job at this end, and where most enquirers adopt such noms de plume as "Anxious" and "Worried," and "Perplexed"; but you may be reminded that trap-nesting would long since have enabled you to discover that this bird was not paying her way.

E. W. Three out of the four chicks had infectious coccidiosis, the caeca yielding positive evidence of the earliest possible infection. The other had pneumonia and a burst yolk sac. Adopt the catechu treatment referred to in other replies.

"Dr." The autopsy entirely confirms the diagnosis during life. The lenses and their capsules were perfectly transparent, and the irises were adherent to the extent of about three-fourths of the circle, which accounts for the peculiar pucker, particularly in the right eye. This is the "dry" iritis, which you would recognise as "quiet" iritis in man. The exudate is confined in the parenchyma, and does not discolour the aqueous humor. During life I found that sudden darkness and alternative exposure to a hundred candle electric light affected the pupillary opening, but exhibited a drag on the adhesions. Authorities on poultry ailments recognise gout in other forms, and I am inclined to assign it as the cause in this fowl. The altogether artificial conditions under which we keep them, and the excess of concentrated foods OUGHT to produce gout, in some form or other—imperfect metabolism, eh!

T. All three chicks were badly infected with chicken coccidiosis, which you will know is an infectious disease, and conveyed in many ways. It is not so fatal as B.W.D., and is amenable to treatment if early recognised. It is more important to prevent it by scrupulous cleanliness, by burning the sweepings with the droppings, and disinfection of equipment. The greatest number become infected through taking food soiled by the droppings of those already diseased, as with those sent. In two the blind pouches only were filled with inflammatory products, while in one the morbid material extended to the rectus, which was distended with it. Besides adopting the catechu treatment, I advise raising their tone by iron and quinine.

"Walverden." There was no disease to account for the death of this White Leghorn pullet, but she had an abnormal heart. It was twice the average size, and the usually pointed apex was round, like that of a pigeon. The heart had failed in systole. It would be interesting to know if any others of the same parentage have been among the "found-deads," or if they are future victims to an inherited defect.

B. The organs all appeared perfectly healthy as is usual with birds affected with nervous disorders. This trouble corresponds in some respects with epilepsy in humans. The chief causes in birds are ptomaine poisoning and the cumulative poisons which occur in Indian peas (lathyrus sativus), and in some Burmah and Egyptian pulses. These get ground up and mixed with poultry foods, and the vendors do not know themselves that anything is wrong until informed of suspicious deaths. My advice, then, is to cease using all the present stock of foods and obtain fresh supplies from some entirely fresh source. A half grain of sulphate of soda per bird and a half starvation ration for a few days might help to reduce the disposition to fits and the acrobatics you describe.

G. All these chicks had eaten the chaff and their gizzards were packed, blocked and acutely inflamed. Only a sprinkling is needed, not a four inch layer, as I understand from your letter. Their development had been arrested. I should think, by too early feeding, or it may be that the impaction occurred very early. Anyhow, the chicks' bodies confirm your description of "shrunk rather than grown," and the yolk sacs were distended, and in one case had caused twisted bowel. You cannot do better than follow Mr. Newman's formulæ.

C. The White Leghorn hen had produced yolks too fast to get into the tube, some had broken into the abdominal cavity, and she collapsed with acute peritonitis. Unless you are willing to slightly reduce the output of eggs for a while, this risk is one that must be taken with the small-bodied prolific breeds. An occasional fast and a few small doses of sulphate of soda or magnesia in the mash will reduce the high pressure. Please see other references to similar cases.

E. The chick had pericarditis and pneumonia, but the latter I regard as secondary. The heart sac was covered with products of inflammation, and its inner side adhering to and inhibiting its action. I should not attribute the trouble to infection, but to chill or great variations of temperature. There are, however, many cases in older birds, the origin of which is very obscure, rheumatism and the translated fungus of common mildew account for some. In addition to looking for any weak points in the management, make sure that you are not giving any damaged foods.

"M." The chicks are victims of that infectious form of pneumonia known as pneumomycosis, and caused by taking in the spores of a fungus (chiefly the aspergillus fumigatus). According to the latest American investigations this disease may be carried in the egg, or upon it, and in food and litter, and incubators and brooders harbour it at a temperature which promotes rapid sporulation. It is distinguished from accidental pneumonia (chills, etc.) by the presence of yellow solid material in the lungs, instead of being dark coloured throughout. Cases occur among the hen-hatched, through infected litter. Alas! that the experimentalists, with every means of testing and treatment, pronounce the disease to be fatal, and only advise prophylactic measures, such as will no doubt be known to you. The many instances in which the mortality has ceased after a few days of the iron and quinine treatment makes me think that it fortifies against infection.

"M. E." Something is wrong with the feeding, as both chicks had the gizzards packed tight with coarse grit and no atom of foodstuffs in them. One had passive congestion of the lung, but I should regard that as secondary, and attribute death to heart failure, consequent on acute indigestion and the impaction stated above.

"B." The chicken have the infectious disease known as pneumomycosis, caused by the fungus called aspergillus fumigatus. You will see where I have cut the lungs that, instead of the normal "lights," there are solid portions, and that there are similar ones in the substance of the heart. One is much more developed in the lungs than the other, but both hearts are affected. Try to confine it to the one brooder. Mouldy forage and bedding are among the chief sources, and the spores are taken in while breathing. Remove all suspected foods or litter, and, if you can, disinfect with sulphur fumes in preference to a liquid. Please see other cases reported on in "Eggs."

"S." The chick had pneumonia of an infectious type. The "seeming to have no use for their legs" is due to an auto-intoxication and not to a brain or nervous disease primarily. Treatment of those once smitten does not offer any hope. Weeding out all suspects promptly and burning the carcases and disinfection is all that one can advise. See recommendations to "M" respecting another form of pneumonia.

"T." The post-mortem findings are quite opposed to your views of the case. A hatch of only 50 out of 96 is, to begin with, suspicious of low vitality. All the organs were in the embryonic stage of development, with livers the colour of an unripe lemon, and the yolk not absorbed, nor normal in consistence, colour, or odour. There was no evidence of disease, but they were NOT FIT TO LIVE. Among the causes may be mentioned disease or feebleness on one side or the other; too many hens to one sire, and variations in the temperature of the incubator. There are many reasons for not being too sure about the causes of death, but embryonic organs are convincing.

Mrs. C. A drowned heart would be a fair description of the case of this Leghorn pullet. The organ itself was dilated and the pericardium distended with fluid. From the pathological point of view she was specially interesting, as the yolk sac had never been absorbed, but converted into a substance comparable to chalk, and covered with hard prickles of metallic appearance and density. There were three yolks in different stages of calcification attached to the ovarium. It was the size of a walnut. Such cases are traceable to too early feeding and arrest of the normal absorption of the yolk, but there are other and less frequent causes.

J. B. S. Apoplexy of the right lung. The Sussex cock had a hypertrophied heart. This condition and dilatation are very frequent among male birds, especially when the "heroes of a hundred fights." The milder temperament of the female renders her almost immune. The "signs of leg weakness" were due to giddiness.

"C." The chicks had B.W.D., and in such acute form that only one lived long enough to get a pasted vent and show the best-known symptom of the malady. According to the latest information from the richly-endowed American bureaux of Agriculture, the germs of B.W.D., of coccidiosis, and of pneumomycosis may be conveyed in the egg. I have long since expressed the opinion in this journal that the oöcysts of coccidiosis are transmitted from the ovarium of recovered pullets to their chicks. My reason for this belief is the advanced stage of the lesions found in the caeca of chicks a week old. Since the scientists know of no remedy it is open to us to try those recommended to cure everything. Sanitation, which includes disinfection of the most thorough kind, is advised.

"H." The chicks (2 not 1 as stated) were suffering from infectious enteritis of the kind known as coccidiosis, the blind guts being filled with the products of inflammation. The chief means of infection is by soiling of food by droppings of those affected, and the more often swept up and burned the less likely to spread. Give water only that has had fifteen grains of catechu to the gallon dissolved in it, and on alternate days fifteen grains of sulphate of iron with a dram of dilute sulphuric acid to the gallon. If you will be diligent, you may stay the plague before the germs strengthen by passing through fresh victims.

"A." The White Leghorn hen was the subject of jaundice, caused by interrupted circulation of portal system of the liver, and this was due to pressure of accumulated fat which was also squeezing out the ovarium, which could never have functioned again. Although this was a case which "he that runs might read," I thank you for an explicit letter. If, as you say, you were "taken to task for your brevity" on a former occasion, you may now consider yourself purged of the offence. "A wise man heareth reproof." Other hens showing similar symptoms should have a half to one grain of calomel once and 15 or 20 grains of glauber salts daily in mash, and an occasional fast.

C. One of the chicks had pneumonia, and the other had the caecum (one horn only) filled with the morbid products of coccidiosis infection. The first I should regard as accidental, and the second as certainly infectious. The most recent information from American experimentalists confirms the use of catechu, fifteen grains to the gallon of drinking water, and this might be alternated with the iron and quinine, but not mixed or given in the same hour, as they are incompatible.

J. C. G. The pullet had inflammation of the bowels (enteritis), and I should be inclined to endorse your opinion as to the cause.

"J." I have examined the chicks and find congestion of the lungs in both, but I regard it as secondary to a nerve toxin acting in such a manner as led to your "finding them on the floor quite rigid, opening and closing the beak," but recovering temporarily with the warmth of your hand. I should not regard it as infectious, but as due to something in food or water. It appears to be a cumulative poison which does not act until many minute doses have been taken. What the poison really is, is not known, but there is plenty of evidence of similar results in other species following on feeding with Indian peas and some of the imported beans from Burmah and Egypt. There is much difficulty in tracing to the source because the vendors take up a defensive attitude as to everything they deal in, while not knowing if adulterants or accidental substances are present. I would suggest putting aside all foodstuffs at present in use, and supplying from a totally different source. The animals which are referred to above continued to fail for some time after the toxic peas (Lathyrus sativus) were withdrawn from the ration.

W. Coccidiosis, in my opinion, may be propagated through the ovarium of recovered hens and incubated with the chick in the shell. It is not easy to answer your questions because sufficient positive evidence is not forthcoming, and a vast amount of research work has yet to be done. It is because I find such very young chicks to have "made considerable progress" that I express the above opinion as to inherited infection. Unless the oöcysts are found in the diseased products by microscopic examination, it is not absolutely proved. Long practice and thousands of observations enable me to recognise by the lesions (approximately) the duration of the malady. Yes, they may "die in three days," but there is the frequent complication of pneumonia, and the very short period of three days does not really represent the time incubated, if I am right in the foregoing deduction as to inheritance. Yes, "already in the eggs" is my opinion, as above said. Strength of disinfectant.—Yes, if you can get contact; but here comes the trouble, as one of our members remarks, "you might as well try to disinfect the world, as a large range." I would suggest a trial of the iron and quinine as a prophylectic. It is but a poor blind empirical suggestion, but appears to have succeeded in some instances.

"D. W." The abdomen was filled with clotted blood. The bird died from haemorrhage, but it was a small rent in the liver, and the escape had been going on for a day or two. The organs were healthy, and I should be inclined to attribute the trouble to extraneous causes, such as a tumble, a fight, or being chased.

"F." Post-mortem examination of the R.I.R. hen shows the distension of the rectum and rupture of it, with escape of the contents into the abdominal cavity, heart failure, and death; but one has to go back to the cause, which is the distension with intestinal gas. This again is due to degeneration of the liver, and its failure to supply bile with its antiseptic qualities. The remedy then is to be looked for in the feeding. Fatty degeneration had been followed by atrophy of the liver. Others might be given a grain or two of calomel, and daily doses of fifteen grains of sulphate of sodium in the morning feed.

G. The nervous symptoms you describe, and commonly known as wry-neck or limber-neck, are in this case due to an auto-intoxication from the condensed pus abscesses which I am sending with this letter. Abscesses in birds do not come to a point and break, but attain a maximum size and then condense, and these would be of some standing. It should be regarded as an accidental trouble and incidental to the system of breeding from high production fowls. It would seem desirable to prescribe a fast now and again, as a means of lowering tension without interruption in laying. 2. The "gurgle" in the other birds is due to a slight laryngitis, which on dissection shows a little mucus of tenacious character, and would be coughed up by man or beast, but it is not by fowls because they are relatively insensitive in this hypersensitive region. Inspiration of eucalyptus by holding the head inside a wide-mouthed bottle might be tried.

M. E. P. The chick had caseous pneumonia or pneumomycosis or aspergillosis of the lungs. It is often associated with B.W.D., but is not caused by it. The fungus known as aspergillus fumigatus is inspired, and rapidly multiplies in the warmth and moisture inside young chicks. The spores of the fungus are widely distributed, but badly harvested grain and millers' offals that have been damp, such as that at the bottom of sacks, is a frequent source, and in mouldy straw, dried, and then stirred up by scratching. Such causes should be looked for and removed. Treatment is of no avail, but a high opsonic index resulting from judicious feeding is calculated to afford resistance. Infection as between one chick and another does not appear to be so much a risk as that of a number obtaining the spores from a common source.

"R." Of the three chicks examined, one had inflammation of the bowels, one had pneumonia of non-infectious type, and the other could not be diagnosed. All had lived entirely on the yolk, and none had digested other food. As it is impossible to decipher your name with the aid of that most valuable Register, I am cutting off the heading of your letter and pasting on the envelope, which I hope may reach you.

G. B. W. The chicks had pneumonia of the kind caused by bad air and excessive heat, but experience tells us that the sporadic form may at any time become infectious, and any irritation of the lungs invites the spores of aspergillus fumigatus, and pneumomycosis follows. This is my reason for writing to you, as you cannot see my printed reply for a clear week. The abnormal state of the yolk sac is not the cause but the effect of their illness. Any rise of temperature or invasion of serious disease has this effect. The Fe. SO_4 should rather fortify them against the disease than otherwise. Except for the accidental rise to 108, your management appears to be quite correct. Segregate all suspects, and if you have spare equipment remove the healthy to a fresh brooder, and disinfect thoroughly.

"D. R." The White Leghorn hen had been bitten through the anterior ribs, one of which was broken, and a quantity of extravasated blood was found in the lungs, and one portion of the liver was also punctured. The clots had decomposed and blood poisoning followed. The long tushes (canine teeth) had nearly met when the hen was grasped by what must have been a good-sized dog. Your forcible feeding only prolonged her misery.

"L." There was a tangled mass of long grass stems, twisted like a hay band, and quite immovable, entirely filling the crop, and extending to the proventriculus. Gastritis followed. Your treatment was good, but a cure impossible, owing to the conditions just described. This is not so rare as might be supposed, and Mr. Bostock Smith, in mentioning it, informed us that he avoided its recurrence by grazing off with pigs or sheep before running fowls on pastures where long stems might otherwise be collected. Cases of eating hay also come under my notice, and one which had swallowed long chaff for bullock feeding had drawn a piece of hay into the larynx and become suffocated.

E. K. D. Both chicks had pneumonia. It was not of the type mentioned in reply to M. E. P., but there is always a risk of pneumonia becoming infectious, and every precaution should be taken.

"S." This White Leghorn pullet had a deformed heart. Instead of coming to a point below (apex) it was flat, except for a depression in the centre. She had never thriven, was undersized, and had a dark congested liver, caused by indifferent pumping by such a heart. It is just possible that others of the same parentage might have had this malformation, but not very likely, and some other cause should be looked for.

G. M. C. (Kent). Gangrene of the left lung, resulting in blood poisoning by absorption. The other lung was quite bright, and enabled the bird to linger on. Origin of the lung trouble not known, but coughed-up material might prove infectious to others, and a careful watch should be kept.

"L." One of the chicks had coccidiosis and in one caecum horn only. The other had a dropsical yolk sac, and could not assimilate other food. Yes, I would certainly advise adopting the catechu from the first, as its action should be greater on the newly-infected, and while the membrane is not covered with a thick impenetrable mass of morbific material. I think you will keep it in check, if not absolutely master it, by doing so.

H. LEENEY.

Utility Duck Club Notes.

By H. B. CARRINGTON.

The Hatching Season has begun for many people, and even if they who rely upon the broody hen are still waiting for her sometimes inconvenient habit to manifest itself, it is high time to think about the necessary detail work which makes for a successful hatching season.

The selection of the right kind of bird to mate will probably have been dealt with already, but a word or two on the subject may still be of value.

If trap-nests have not been used, try to pick the laying type. This is hard to define, but I will do my best. The laying type, to my mind, consists of a combination of points. The first thing I always look to in a duck is the head. My experience is confined to the breeds I keep myself, viz., Khakis and Runners, though I feel pretty certain it applies equally well to other breeds. It is rather difficult to make oneself quite clear about the point, for picking the laying type of head is largely a matter of practice. To the experienced eye it is the head which shows breeding, which combines the qualities of aristocracy, fineness, alertness, with high-developed nervous energy, as its leading characteristics. The eye is part and parcel of such a head; it will be bright, well set high on the head, roving and rather restless, always on the look-out for the good things of life. It is rare, too, that such a head will be found set clumsily on the neck, or combined with a thick coarse neck.

The next most important point, perhaps, is to look for the bird with plenty of "egg room"—it must have ample space between the legs. Try to find the bird which, even if it is not in full lay, looks as if it were—such a bird will carry a big egg bag. There will be no meanness in any part of its body, and yet no coarseness; it will be well proportioned, even graceful in its outlines, except at night, when even the most ardent duck-lover could not describe it thus.

Much more could be written on picking the laying type, but there are other matters of almost equal importance if good hatching results are to be obtained.

First and foremost is to select the right type of egg. This advice has been given many times before, but will still bear repetition. The point to be particularly guarded against is "thin shell." This may be detected in a moment by the ring of the shell. A thin-shelled egg, if tapped against another egg, or with the finger nail, will give out a totally different sound to that which a normal-shelled egg will give. It is not a bit of good to set the thin-shelled egg, however prolific a layer the duck which produced it may be. Frequently on duck eggs will be found little extra deposits of lime, either in powdery form, which will easily crush off, or in little hard nobs; as a general rule such deposits do not matter, and will not reduce the hatching chances. What does matter are mis-shapen eggs They are useless for hatching.

The last point I will mention is size. Do not set 2oz. duck eggs. Eggs of that weight are what you expect chickens to lay, therefore, do not insult ducks by trying to perpetrate a strain which is in the habit of laying a 2oz. egg.

With regard to the actual hatching, I will give no hints; are they not written in the leaflets of the Club, or in the Year Book for 1923 or 1924? This being so, anyone who wishes to learn what the people know about these matters would be well advised to join the Club, full particulars of which may be obtained from me.

Blacklands, Crowhurst, Sussex.

EGG-LAYING TEST.

THIRD MONTH'S RESULTS.

LOCAL FANCIERS WELL UP.

The third period of the Laying Test under the auspices of the Clitheroe and District Utility and Fanciers' Poultry Society terminated on January 19th. The light breeds, whilst showing improvement, are not yet putting up the records expected of them. It is noteworthy that Mr. H. Harrison's pen of Black Leghorns have still further strengthened their position at the head of their section, by having during the last month increased their total number of eggs laid by thirty-five.

Several pens in the same section have still to deposit their first egg. In the heavies, Mr. Ramsbottom's White Wyandottes still maintain their position, but are now challenged by Mr. Ruthven's pen of the same breed. The 'Dottes and Reds are laying well, but Light Sussex and the pen of Australorps are not yet breaking any squares. It will be noticed that the majority of eggs are termed second grade. This will be more easily understood when it is mentioned that all eggs, to be scored first grade, must weigh 2 ounces, and as all poultry-keepers are aware, the 2 ounce egg from pullets in the majority of cases, only appears in conversation and not in the egg basket. During the past month several deaths from pneumonia have occurred, the owners in each case having been notified.

LIGHT BREEDS SECTION.

		Total Eggs.	2nd Grade.	Points.
1.	H. Harrison (B.L.)	76	53	212.6
2.	Miss Greenwood (W.L.)	68	49	190.5
3.	J. Boothman (W.L.)	65	39	181.8
4.	Crook and Dugdale (W.L.)	63	46	172.8
5.	T. Bickerstaffe (W.L.)	56	45	151.8
6.	H. Petty (W.L.)	48	27	140.7

HEAVY BREEDS SECTION.

		Total Eggs.	2nd Grade.	Points.
1.	T. Ramsbottom (W.W.)	96	43	288.1
2.	J. E. Ruthven (W.W.)	89	42	258.3
3.	T. Holgate and Sons (W.W.)	74	63	200.1
4.	H. Petty (W.W.)	69	45	196.4
5.	R. O. Butterworth (R.I.R.)	67	37	190.4
6.	P. Warren (R.I.R.)	70	64	187.4

EDITORIAL.

(Continued).

INSPECTION AND REGISTRATION OF FARMS.

ILL-INFORMED CRITICISM.

One would be amused at the criticism which has been levelled against the Ministry of Agriculture and the S.P.B.A. in connection with the scheme for the Inspection and Registration of Poultry Farms, but for the fact that our contemporary, "Poultry", sees in the scheme, or in the assistance of the Ministry in enabling it to be carried through, a danger to the good relations existing between the societies affiliated to the National Poultry Council, and so to the N.P.C. itself.

We would remind our contemporary that no Society has given such strong support to the N.P.C. as has the S.P.B.A. Both Mr. Edward Brown and Mr. Brownson, the Hon. Sec. and Hon. Treasurer respectively, have publicly stated that but for the action of the S.P.B.A. delegates the movement for the establishment of the National Poultry Council would have fallen through. Two years ago the members of the S.P.B.A. answered an appeal by the Council by contributing a cheque, which to use the words of Mr. Brownson, "Arrived at a time when the finances were in a most unsatisfactory state. In October last year a cheque for £300, subscribed by members of the S.P.B.A. was handed to Mr. Brownson. The S.P.B.A. has contributed more than 10 times the amount that any other society has done to the funds of the N.P.C., and has constantly and unflinchingly supported it. It is unlikely that we shall do anything which will lead to disunion, and it puzzles us how the present scheme can be made to do so, unless by wilful misrepresentation, and sheer jealousy and ill-nature, we turn first to the criticism in the issue of the "National Poultry Journal," dated February 1st. The Editor begins with two quotations, one by Mr. F. W. Wait, and one by ourselves. They are as follows:—

> "Your main trouble appears to have originated owing to your belief that the scheme was a National one; it would be interesting where you obtained this idea, as such a thought never entered the minds of the Council of the S.P.B.A.—F. W. Wait.
>
> "To this condition the Council of the Scientific Poultry Breeders' Association gladly assented, as it is recognised if it is to be of real value to the industry it must be a National and not a mere affair of a single society."—Tom Newman. In the N.P.J., December 14th.

This is stated to illustrate the confusion in the minds of those who prepared the scheme. The first line of our letter refers to the assurance demanded by the Ministry, that the S.P.B.A. should not prevent any other societies participating in the scheme should they wish to do so.

Mr. Wait was quite correct in what he said, the Council of the S.P.B.A. had no idea that the scheme was a National one. It could not be a National one unless other societies participated, and the construction put upon the paragraph taken from our letter is altogether a wrong one. We did not expect that if other societies came in, they would tamely acquiesce in every detail of the scheme, possibly they would have accepted it in its broad lines for the experimental period of 12 months, so that with the experience gained, modifications or extensions might have been made, or a new scheme evolved. We certainly did not expect this interpretation to be put upon what we wrote.

What follows is mystifying in the extreme. The Editor goes on to say:—

> "The scheme and the recognition and approval of it by the Ministry of Agriculture grants preferential treatment to our Society, viz.:—(a) Receiving applications for inspection. (b) Makes one paper the official organ of the Ministry (c) Grants a monopoly in a registration scheme for one year, and in effect lays down conditions which are unacceptable to many breeders. (d) It grants to one society special information of a highly confidential nature, which if withheld from other societies, may be a serious disadvantage to the industry."

At the meeting of the National Poultry Council, at Bedford, on October 11th, Major Tom Potter moved, and Mr. Marcus Slade seconded, a resolution proposing the formation of a Breeders' Protection Society, as the Constitution of the Council would not permit this, it was withdrawn. Speaking on the subject, we said that whatever happened the S.P.B.A. would persist with its present scheme, but **it invited the co-operation of other societies.** Representatives of all the large societies were present. Unfortunately we were badly misreported in the "National Poultry Journal," and made to say that the S.P.B.A. did not invite the co-operation of other societies. The Editor was kind enough to allow us to correct the report in his next issue, but there are no doubt many who did not read the correction. Thus a public invitation was extended to other societies to co-operate with the S.P.B.A. in the scheme—yet we are accused of 'seeking a monopoly."

To deal with the objections above. (a) As the Ministry in the first place demanded an assurance that no society which wished should be debarred from entering the scheme, how can it be said that by giving preferential treatment to one society, if other societies had come in they could have received applications, what was to prevent the N.U.P.S. had they come in, from publishing anything connected with the scheme in the N.P.J., or for receiving applications. How will there be a monopoly of registration if the other societies had co-operated or wish to co-operate, they would deal with their own members, as the S.P.B.A. would deal with theirs. Had the Poultry Club come in, and wished to publish a list of their members in the Poultry Press there was nothing to prevent them. As to "conditions which are unacceptable to many breeders" it will puzzle our contemporary or any other body to devise conditions which are not unacceptable to many breeders.

The following letter was addressed to the Secretary of the N.U.P.S. by the Ministry. Had it been published it would have put an end to many misconceptions. It will be seen that the then Chairman of the N.U.P.S. and the Hon. Sec. of the N.P.C. were informally consulted by the Ministry, that was last May. It will be seen that it is suggested that the N.U.P.S. participate with the S.P.B.A. in forming a joint commitee, and bringing out a joint register, and we particularly draw attention to the concluding paragraph, which gives such a splendid opening for good work for the two societies or others who wished to come in. The scheme is run for an experimental period of one year, and there would have been an excellent opportunity for improving, modifying or extending it, had a broader view of the whole question been taken, and pains taken to get a little more accurate information.

T.B. 225.
10, Whitehall Place,
18th January, 1924.

Madam,

INSPECTION AND REGISTRATION OF FARMS.

In reply to your letter of yesterday's date, I am directed to state that the arrangement to which you refer has been approved by the Treasury for an experimental period of one year only, commencing 1st January last, and has reference solely to the Register of the Scientific Poultry Breeders' Association, which is the only Association which has so far asked the Ministry to provide the facilities in question.

When the application of the Association was before the Ministry, the possibility of other Poultry Societies desiring similar facilities was considered, and the Ministry, after consulting informally the then Chairman of the National Utility Poultry Society and the Secretary of the National Poultry Council, understood that no other Society had established a Register of approved breeders on the same lines as the S.P.B.A., and that there is no reason to expect that any other Society would desire to do so.

The Ministry cannot contemplate inspecting for two or three different Registers, and is therefore of opinion that if any other Society wants to come in a Joint Committee should be formed between such Society and the S.P.B.A., so that there should be one Joint Register for all Societies. An assurance has accordingly been obtained from the S.P.B.A. that, should other Poultry Societies desire to take advantage of the Scheme at a later date, the S.P.B.A. would be prepared to participate in any Joint Committee which might be established for this purpose.

If your Society desires to take advantage of the Scheme, I am to suggest that it should open up negotiations with the S.P.B.A. with a view to setting up a Joint Committee on the lines referred to above.

I would, however, point out that the arrangement is only approved by the Treasury for an experimental period of one year from 1st January last, and that at the end of such time the whole Scheme will be reconsidered in the light of the experience gained. Any extension of the present arrangement would require further Treasury sanction.

In view of these considerations and of the fact that the setting up of a Joint Committee is a matter which must necessarily take time to complete, I am to suggest for the consideration of your Society that negotiations for setting up such a Joint Committee could best proceed on the basis that any extension of the Scheme which may eventually be considered to be desirable, should become operative as from 1st January, 1925, provided that the sanction of the Treasury is obtained to the continuance of the Scheme in any form after the experimental period has elapsed.

I am, Madam,
Your obedient Servant,
(Signed) WYNN THOMAS.

Mrs. Rawson, Secretary,
The National Utility Poultry Society,
3, Vincent Square, S.W.1.

The Ministry states in this letter: "It cannot contemplate inspecting for two or three registers" (par. 3). We wonder our contemporary was at pains to publish this without the context, and to comment on it by saying that "The Ministry refuses to grant to any other societies exactly the same privilege it has granted the S.P.B.A." Is not this trivial? Is it not unfair and very misleading to the public? Can the Editor be unaware that by publishing these words without the context, an interpretation is put upon them altogether different to what was intended.

Later on he says:—"So far as we are aware, no Ministry of Agriculture has ever before singled out one society from many for its recognition and support, and it is difficult to believe that its action in this case is not due to a great error in judgment." Has he forgotten that the N.U.P.S. was for several years in receipt of a grant from the Board of Agriculture in respect to its laying test? Did any of the Lancashire societies receive such a grant or any other society? We have no recollection of their doing so.

The S.P.B.A. initiated a scheme in response to a request of its members. As usual, it has taken the initiative, and those who do so are always subject to criticism. If any ill-feeling has been aroused, it has not been through the action of the Ministry or of the S.P.B.A., but through misinformed and ill-natured criticism. We are regretfully compelled to add that there has been deliberate misrepresentation. From the time of the publication of the details of the scheme, other societies have been publicly invited to co-operate. The S.P.B.A. went to the Ministry solely so that the inspection should be absolutely impartial. It undertook the financial risk, and there was no thought or desire on the part of the Council to exclude other societies or obtain preferential treatment. Had there been, it would have soon been dissipated, for the first demand by the Ministry, which was conditional, on its acceptance of the scheme, was the assurance that other societies should not be debarred if they wished to come in. That assurance was given at the General Meeting of the S.P.B.A. It was conveyed in a letter to the Poultry Press, and published in most of the poultry papers on December 14th, and yet we are accused of seeking a monopoly, and an extract from that letter is published in the National Poultry Journal this week, but the part referring to this assurance is withheld.

The S.P.B.A., we repeat, had no desire or thought to obtain advantages or to the exclusion of other societies. It is too big, too strong, and we may add too wise to resort to trickery. Last year it enrolled more than double the members that any other society did, and it did so on its merits, without campaigns or advertising. It is out for the industry, and if a National scheme of Inspection and Registration can be evolved, and the National Poultry Council be responsible for it, then the S.P.B.A. will be prepared to give it the fullest support. In the meantime it has merely tried to meet the need of the moment. It has presented the nucleus of a scheme which is capable of great development.

WOLSTANTON (STAFFS) LAYING TEST.

SUMMARY OF LEADING BIRDS AT END OF SECOND PERIOD, 11th DECEMBER.

SECTION I.—WHITE LEGHORNS.

Pos.	Owner.	1st Gr.	2nd Gr.	Total.	Pts.	Points to date.
1.	Budd, J. W.	7	10	17	92	137
2.	Till, W. H.	5	0	5	30	97
3.	Budd, J. W.	0	9	9	45	87
4.	Pember, Capt.	0	0	0	0	77
5.	Houghton, G. S.	4	1	5	29	72
6.	Townsend, J.	6	0	6	36	58

SECTION II.—WHITE WYANDOTTES.

Pos.	Owner.	1st Gr.	2nd Gr.	Total.	Pts.	Points to date.
1.	Pember, Capt.	14	1	15	89	173
2.	Pattison, E. L.	0	11	11	55	139
3.	Bedson, T.	0	0	0	0	110
4.	Macham, T. C.	3	2	5	28	90
5.	Harris, T.	9	1	10	59	59
6.	Timmis, Mrs. E.	0	0	0	0	38

SECTION III.—A.O.V. LIGHT BREED.

Pos.	Owner.	1st Gr.	2nd Gr.	Total.	Pts.	Points to date.
1.	Bailey, W. (B.L.)	0	11	11	55	85
2.	Malbon, C. (B.L.)	5	0	5	30	75
3.	Ashworth, Miss (B.L.)	1	4	5	26	61
4.	Ashworth, Miss (B.L.)	2	4	6	32	52
5.	Malbon, C. (B.L.)	0	0	0	0	46
6.	Cottam, L. (B.L.)	0	0	0	0	30

SECTION IV.—A.O.V. HEAVY BREED.

Pos.	Owner.	1st Gr.	2nd Gr.	Total.	Pts.	Points to date.
1.	Cottam, L. (R.I.R.)	20	0	20	120	188
2.	Heath, C. (G.Wy.)	8	0	8	48	130
3.	Wootten, S. (R.I.R.)	19	0	19	114	114
4.	Shelley, P. N. (R.I.R.)	12	0	12	72	96
5.	Bedson, T. (R.I.R.)	0	0	0	0	71
6.	Hall, A. (Buff Rock)	8	0	8	48	66

During this period the weather was very wild and severe Three birds are in partial moult, and two have been isolated with colds. The remainder are in good health.

E. JOHNSON, Test Manager.
J. DEAN, Hon. Secretary.

BALDERSTONE LAYING COMPETITION.

REPORT AND TOTALS FOR THE THIRD MONTH.

SMALL BREEDERS' SECTION.

Pen.	Name.	Eggs.	Points.	Total points.
1.	W. Smith	6	33	144
2.	Mr. Robinson	28	174	192
3.	T. Stopforth	35	219	285
4.	R. and S. Ramsbottom	19	114	309
5.	F. Thomas	33	189	533
6.	Wrigley Bros.	33	189	591

LIGHT BREEDS.

Pen.	Name.	Eggs.	Points.	Total points.
1.	A. Sharples	72	432	1146
2.	T. Ramsbottom	69	408	1158
3.	G. Parkinson	78	447	1221
4.	F. Ainsworth	26	162	711
5.	S. Duce	57	354	777
6.	W. Parkinson	74	459	1122

APPLICANTS FOR MEMBERSHIP.

Tubbs, Major A., Owlswick, Princes Risborough, Bucks.
Gould, H. A., "Khan Yunus," Crutchfield Lane, Horley, Surrey.
Dance, A. S., Millfield House, Hawkinge, Folkestone, Kent.
Naylar, F. A., Eton House, Hanging Langford, Nr. Salisbury.
Mason, H. E., The Shanty, Church Road, Ferndown, Dorset.
Mitchell, John, Newlands Cottage, Nigg, By Aberdeen.
Warren, W., 33, Highfield Road, Acton, W.3.
Hamer, Miss L. G., Chapel House Farm, Oakwood Hill, Ockley.
Plummer, E. F., 45, High Street, Leighton Buzzard.
Goldthorpe, E. H., 1, Woodville Mount, Hunslet Carr, Leeds.
Griffith, Mrs. E. S., Portledge House, Bath.
Neville, G., Hill Crest, Lindridge Road, Sutton Coldfield.
Lowen, A. Taylor, The Cottage Poultry Farm, Doddington Park, Nantwich.
Gee, H. W., The Lickey P.F., The Uplands, Lickey, Bromsgrove.
Hall, Miss B. M., East Burton, Wool, Wareham, Dorset.
Dodd, R. N., Highfield P.F., Hailsham, Sussex.
Commander, The Hon E. A. Nicholson, Manston, Roborough, S. Devon.
Fricher, J. R., Rolston Seats P.F., Seaton, Hull.
Thomas, Mrs. A. L., Everley Cottage, Woking.
Wilson, J., Swinstons Hill Road, Dinnington, Rotherham.
Scase, M. P., Mayland, Althorne, Chelmsford.
Curran, Mrs., Britwell Solome, Watlington, Oxon.
Piercy, E. J., 64, Blenheim Road, Walthamstow, London, E.17.
Williams, T. L., Bow Bridge, Prestbury, Glos.
Goodwin, H., "Wimborne," Menston, Leeds.
White, Commander A. H. M., Burdocks, Wisboro' Green, Sussex.
Steward, Mrs. H., 671, Neath Road, Llansamlet, Swansea.
Colclough, Wm., The Bungalow, Tower Hill Road, Upholland, Lancs.
Hilton, H., 1, Bear Lane, Southwark, S.E.1.
Harper, J. W., Hawthorn Poultry Farm, Long Stratton, Norfolk.
Jackson, Maj. C. R., Glaslyn, Govilon, Nr. Abergavenny, Mon.
Jerrams, N., The Green Farm, Adderbury, Banbury.
Montgomery, B. H., Soberton House, Soberton, Hants.
Stimpson, S. A., Bixley, Norwich.
Dewar, R. E. J., Powmill P. Farm, By Dollar, Scotland.
Monteith, Mrs., Cranley, Carstairs, N.B.
Goodwin, Jas., Middle Lane, Buglawton, Congleton, Cheshire.
Anderson, Peter R., Moat, Lesmahagow, Lanarkshire.
Sharp, Marella, 18, Perseverance Street, Wyke, Bradford, Yorks.
Fruen, Reg. L., Fruen's Feathered Farm, Ainsdale, Nr. Southport.
Readman, J. F. A., Milnton, Tynron, Dumfriesshire.
Horner, W. B., "Glencoe," Winterslow, Nr. Salisbury, Wilts.
Broadhead, H., E. L. C., Manor P.F., East Ardsley, Wakefield.
Hatton, E. Wm., Wills Ayley Farm, Saffron Walden.
Sanders, H. A., Fairview, Wall Lane, Nr. Lichfield.
Chadwick, Jas. M., Findhorn House, Findhorn, Morayshire.
Millington, Jas., 29, Wallington Heath, Bloxwick, Staffs.
Thomas, A. H., Sycamores. Loose, Kent.
Crabtree, Ernest, 57, Deighton Lane, Batley, Yorks.
Baylis, Miss H., Pedigree P. Farm, Welford Pastures, Stratford-on-Avon.
Hunt, Miss B. G., County Hotel, Lancaster.
Kemp, A. J., 50, Faversham Road, Catford, London, S.E.6.
Webb, Henry, Tugmore. Hartfield, Sussex.
Jameson, Miss K., Oakdene, Ewehurst Lane, Speldhurst, Kent.
McFarlane, M., 40, Bankside House, Broughton Road, Dalton-in Furness, Lancs.
Price, Mrs. W. J., Price's Poultry Farm, The Downs, Horndean, Hants.
Pattison, W. L., 36, Cromwell Road, Maidenhead, Berks.
Sisman, H., Foxholes, Leighton, Huntingdon
Davies, Miss M. H. Lloyd, Lynton, Curzon Road, Hoylake.
Stone, Wm., Tower View, Croiserie, Trinity, Jersey, C.I.
Lever, A. W., Castlemans Farm, Wooburn Green, Bucks.
Roberts, J., The Hawthorns Poultry Farm, Lower Common, Longden, Salop.
Wadd, W., Church Hill, Castor, Peterborough
Greenshields, Mrs. T. E., Westhave, Hawkchurch, Axminster.
Watt, A., Beechwood P.F., Milton of Balgonie, Markinch, Fife.
Bourne, C., Park Cottage, Weeting, Norfolk
Streete, Miss P. M., Thorley Place, Bishops Stortford.
Tyzach, J. E. V., F.R.H.S., Coller Road, Parkeston, Essex.
Brooke, H. S., No. 50, Victoria Street, Batley Carr, Batley, Yorks.
Brentnall, H., Field House, Irby, Nr. Birkenhead
Forsyth, L. F., "Granton," Howick Road, Pietermaritzburg.
Ormsby, Mrs., "Harryville" Lisburn, Co. Down, Ireland.
Maunder, E. R., 97, Goldcroft, Yeovil, Somerset
Handley, Richard, 9, Moor Place, Gr. Crosby, Liverpool.
Smith, Henry, 383, High Street, Smethwick, Staffs
Smith, F., Heights Farm, Linthwaite, Huddersfield
Kauntze, Capt. H. B., M.R.C.V.S., Northwood, Wilmslow, Cheshire.
Turfus, Jas. W., Withick Farm, Tankerness, Kirkwall.
Humphries, R. J., Red House, Wellington, Shropshire.
Morris, Miss Gladys E., The Old Rectory, Hamsey, Nr. Lewes.
Lade, Alexander, Strood House, Rolvenden, Kent
Berny, Colonel, Rosemary, Cuckfield, Sussex
Dodgson, Major C. H. W., Breinton House, Nr. Hereford
Howorth, E., 1, Clock View Road, Beechcliffe, Keighley
Hinstridge, S., 52, September Road, Tuebrook, Liverpool.

KEIGHLEY AND DISTRICT BRANCH OF THE SCIENTIFIC POULTRY BREEDERS' ASSOCIATION. LAYING COMPETITION (Single Bird).

The third period of four weeks in the above Test concluded on January 23rd. Results are very fair considering the severe weather experienced. The health of the birds has been good, no deaths have occurred and the birds are free from disease. The cockerel offered by Mrs. Wilson for L. Sussex laying most 2-oz. eggs during the first twelve weeks has been won by Mr. S. Lawton, Mirfield.

The scoring was as follows:—First grade eggs 1¾ ozs., second grade eggs less than 1¾ ozs. The first twelve eggs under 1¾ ozs. allowed to score:—

LIGHT BREEDS.

Position.	Name.	1st grade.	2nd grade.	Score value.
1.	S. Preston (W.L.)	47	—	47
2.	W. Bancroft (Ex.L.)	45	1	46
3.	S. Lawton (W.L.)	45	—	45
4.	S. Lawton (W.L.)	44	—	44
5.	H. Kershaw (W.L.)	39	—	39
6.	Capt. Owen (W.L.)	30	3	33
7.	Ed. Smith (Ex.L.)	29	2	31
8.	W. Robinson (W.L.)	19	10	29
9.	J. H. Brayshaw (W.L.)	27	—	27

Other scores are:—No. 41 (26), No. 39 (25), No. 7 (24), No. 11 (23), No. 65 (22), No. 31 (22), No. 33 (21), No. 25 (18), No. 60 (16), No. 18 (16), No. 40 (15), No.1 (14), No. 70 (12), No. 19 (10), No. 9 (9), No. 53 (9), No. 36 (8), No. 37 (8), No. 38 (7), No. 17 (7), No. 59 (6), No. 69 (6), No. 48 (4), No. 14 (0).

HEAVY BREEDS.

Position.	Name.	1st grade.	2nd grade.	Score Value.
1.	H. Downsbrough (W.W.)	54	—	54
2.	A. Hollroyd (R.I.R.)	50	—	50
3.	S. Lawton (L. Sussex)	46	—	46
	S. Preston (Buff Rock)	45	1	46
	H. Kershaw (W.W.)	42	4	46
4.	J. Ellison (R.I.R.)	43	—	43
5.	H. Kershaw (R.I.R.)	39	1	40
6.	H. Nelson (W.W.)	38	—	38
	J. R. Waddington (Buff Rock)	26	26	38
7.	Mrs. Barker (W.W.)	36	1	37
	H. Rawlinson (W.W.)	31	6	37
8.	F. Hodges (R.I.R.)	36	—	36
	H. Dixon (W.W.)	32	4	36
	H. Rawlinson (W.W.)	29	7	36
9.	H. Calvert (L. Sussex)	35	—	35

Other scores are:—No. 22 (34), No. 43 (31), No. 56 (27), No. 6 (26), No. 35 (26), No. 27 (26), No. 29 (26), No. 30 (24), No. 32 (21), No. 45 (24), No. 63 (19), No. 28 (19), No. 51 (17), No. 8 (11), No. 20 (10), No. 13 (6), No. 57 (5).

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, FEBRUARY 1st, 1924.

GRAIN AND FEEDING STUFFS.—English wheat is in short supply and experiences a good demand for both poultry feeding and milling purposes, and the average quotation of 10s. 7d. per cwt. shows a further advance of 3d. per cwt. on the week. Imported wheat is also scarce and is in fair request at higher prices. Home-grown malting barley meets a good enquiry at more money, while feeding sorts are in small supply and realise fully late rates. Imported grinding samples are also sparingly offered, and with a good demand recent quotations are readily maintained. The finest samples of British oats are in demand for seed purposes and sell at similar prices to last week, while imported attract a good enquiry and are dearer in some instances. Maize continues to be offered in small quantities, except at Bristol, where there have been good arrivals from Argentina, but all markets again record an advance. A good trade is passing in bran and middlings, but prices for milling offals generally show little change. Barley meal and maize products are also in good request.

MILLERS' OFFALS.—Bran (British): Bristol, £8 7; Hull, £7 12s.; Liverpool, £8; London, £7 17s. Broad Bran: Bristol, £9 15s.; Hull, £9 2s.; London, £8 15s. Fine Middlings (Imported): London, £10 7s. Coarse Middlings (British): Bristol, £9 2s.; Hull, £9; Liverpool, £8 15s.; London, £8 17s. Pollards (Imported): Bristol, £8 5s. Rice Bran: Bristol, £7 15s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £11; Hull, £10 15s.; London, £11 7s. Maize Meal: Bristol, £11 7s.; Hull, £11; Liverpool, £11; London, £11 5s. Maize Meal (S. African): Liverpool, £10 7s.; London, £10 5s. Maize Germ Meal: Bristol, £10 10s.; Hull, £10 5s.; London, £10 5s. Maize Gluten Feed: Bristol, £10 15s.; London, £9 5s.

EGGS AND DEAD POULTRY.

Late quotations are fully held for British eggs, but prices for continental eggs at London are weaker. A moderate demand continues for dead poultry, and prices are maintained for best quality birds, while second grades are dearer.

Week-end prices—Eggs (per 120): British, 28s., 26s.; Irish, 27s., 25s.; Danish, 30s., 28s.; Dutch, 29s., 26s.; Moroccan, 18s., 17s. 6d.; Egyptian, 13s. 6d., 12s. 6d.; Italian, 25s., 23s.; Chinese, 20s., 16s.; Styrian, 23s., 22s. 6d.

Dead Poultry (per lb.)—Fowls, Surrey, 1s. 10d., 1s. 8d.; Irish, 1s. 5d., 1s. 2d.; Others, 1s. 4d., 1s. 2d. Ducks, 1s. 7d., 1s. 5d. Geese, 1s. 3d., 1s. 0d. Turkeys, 1s. 6d., 1s. 4d.

EGGS.

Per Doz.—Ashford, First, 2s. 5½d.; Second, 2s. 3½d. Birmingham: First, 2s. 9½d.; Second, 2s. 6d. Carlisle: First, 2s. 9d. Chelmsford: First, 2s. 9d.; Second, 2s. 7¾d. Denbigh: First, 2s. 4d.; Second, 2s. 3d. Derby: First, 2s. 8d. Dorchester: First, 2s. 2¾d. Exeter: First, 2s. 6d. Guildford: First, 2s. 6d.; Second, 2s. 10d. Hereford: First, 2s. 3d. Hull, First, 2s. 2d. Ipswich: First, 2s. 6d.; Second, 2s. 3d. King's Lynn: First, 2s. 6d.; Second, 2s. 3d. Lincoln: First, 2s. 6d. Llandilo: First, 2s. 6d.; Second, 2s. 3d. Newport (Mon.): First, 2s. 9d.; Second, 2s. 7d. Norwich: First, 2s. 6d.; Second, 2s. 2d. Oswestry: First, 2s. 6d.; Second, 2s. 5d. Penzance: First, 2s. 0d.; Second, 1s. 11d. Salisbury: First, 2s. 5d.; Second, 2s. 4d. Shrewsbury: First, 2s. 6d.; Second, 2s. 3d. Skipton: First, 2s. 3d. Truro: First, 2s. 1d. York: First, 3s. 0d.; Second, 2s. 9d.

FOWLS.

Per lb.—Birmingham: First, 1s. 4d.; Second, 10d. Derby: First, *5s. 3d.; Second, *3s. 0d. Exeter: First, 1s. 6d. Hereford: First, 1s. 3d.; Second, 1s. 2d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 1s. 7d.; Second, 1s. 4d. Newport (Mon.): First, 1s. 5d.; Second, 1s. 2d. Shrewsbury: First, 1s. 4d.; Second, 1s. 2d. Skipton: First, 1s. 9d.; Second, 1s. 7d. Truro: First, 1s. 2d. York: First, *5s. 6d.; Second, *4s. 9d.

DUCKS.

Per lb.—Birmingham: First, 1s. 2d.; Second, 1s. 0d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 5d. Hereford: First, 1s. 3d.; Second, 1s. 2d. Llandilo: First, 1s. 7d.; Second, 1s. 5d. Newport (Mon.): First, 1s. 3d. Shrewsbury: First, 1s. 6d.; Second, 1s. 4d. Skipton: First, 1s. 6d.; Second, 1s. 4d. York: First, *6s. 3d.; Second, *5s. 9d.

* Per Head.

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EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, February 13th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

INSPECTION AND REGISTRATION OF FARMS.

WHAT OUR READERS WANT TO KNOW.

WHY, AS OTHER SOCIETIES ARE NOT DEBARRED FROM PARTICIPATING IN THE SCHEME, ON THE SAME TERMS AS THE S.P.B.A., THEY DO NOT TAKE ADVANTAGE OF IT, AND SO, BY EXPERIENCE GAINED, ASSIST IN EVOLVING A SCHEME WHICH MIGHT BE SUBMITTED TO THE NATIONAL POULTRY COUNCIL AS THE BASIS OF A NATIONAL ONE?

Why the Editor of "Poultry," who published in an abbreviated form the Ministry's circular, omitted that important part which stated that the Ministry had satisfied itself that no other Society was conducting a Register such as that of the S.P.B.A., and there was no evidence to suggest another Society proposing to do so in the near future?

Why he insinuated a doubt as to the value of the assurance that other Societies would not be debarred from participating?

Why the Editor of the "National Poultry Journal" published only the half of our letter, and omitted that part referring to the assurance that no obstacle would be put in the way of other Societies participating by the S.P.B.A.?

Why he has not referred to this assurance in the whole of his article?

Why he made no reference to the fact that at the National Poultry Council meeting at Bedford, in October, the S.P.B.A. publicly invited other Societies to participate in the scheme?

Why, because the scheme is recognised by the Ministry, does he assume that it is a National one? Was not the grant made to the N.U.P.S. for its laying test for several years? Did it become a National Test in consequence?

Why he asserts that the S.P.B.A. would receive preferential treatment when he knew that the Ministry had suggested that the N.U.P.S. should approach the S.P.B.A., with a view to a joint committee and a joint register?

What if the N.U.P.S. had participated, there was to prevent their (a) receiving applications for registration; (b) using their own organ for publicity; (c) sharing in a joint register; (d) receiving the same information from the Ministry that the S.P.B.A. would?

Why he took the following sentence from paragraph 3 in the Ministry's letter of January 18th to the Secretary of the N.U.P.S. "The Ministry cannot contemplate inspecting two or three registers," and omitted the words following, which suggested the N.U.P.S. should approach the S.P.B.A. with a view to a joint committee and a joint register?

Why he states that, so far as he was aware, the Ministry had never before singled out one Society for recognition from many, when he knew the N.U.P.S. had for several years received a grant for its laying tests, which no other Society has ever obtained?

Why he did not inform his readers that the Ministry had informally consulted the then Chairman of the N.U.P.S. (Mr. Street-Porter) and the Secretary of the National Poultry Council, and that these gentlemen had seen no objection to the scheme being proceeded with because no other Society had a register similar to that of the S.P.B.A., neither was any Society contemplating one?

Why he did not publish the circular of the Ministry, which on enquiry we find he received on January 29th in common with the Editors of all other Poultry papers in the same issue as in Editorial remarks and so prevent many misconceptions?

Why, in view of the fact that the Council of the S.P.B.A. had arranged to meet a Committee of the N.U.P.S. to discuss the scheme, he published an article which was likely to be prejudicial to the success of the meeting?

Whether any of the critics of the scheme are optimists enough to believe that any Society, or combination of Societies, will be capable of evolving one which will not prove "unacceptable to many breeders," and what authority there is for many breeders," what authority there is for this statement, and what constitutes "many" breeders.

A LECTURE AT MANCHESTER.

The seventh of the series of Poultry Lectures under the auspices of the Manchester Agricultural Committee was held on Friday evening, January 25th, 1924, at the Nicolas Road School, Chorlton-cum-Hardy, presided over by Councillor C. H. Barlow.

The Chairman, in introducing Mr. T. S. Howard, the Lecturer, in a few well-chosen remarks, explained the aims of the Agricultural Committee and its efforts for the benefit of the citizens. The subject of the paper was "Poultry-Keeping for the Small Man." The paper read was most interesting and instructive, and lent itself open to a good discussion had not Mr. Howard given the "Quid Pro Quo," don't blame my system and I will not condemn yours. Points which would have been most interesting to the backyarder and small man were, is it economical to build houses with half-inch boards tarred outside and limewashed inside? the non-use of creosote and disinfectants generally, the lecturer stating they were irritants to the fowl; the value of cracked or split maize against whole maize, and whether it was the best grain feed for intensively-kept birds stated by Mr. Howard; the general structure of the house being ideal, for the lecturer certainly is an idealist for sanitation and hygiene. Probably on some future occasion Mr. Howard will take off his restrictions, giving the benefit of his experience from experiments carried out, by pointing out the advantages against the general accepted ways.

It was further stated a house could be built on a basic rate of 5s. per bird, meaning to the backyarder a poultry house 6ft. x 6ft. x 6ft. at front to about 5ft. at back for 30s., making a very interesting investment for the poultry enthusiast. Again, the non-use of creosote but peat moss litter for scratching, surely the dust from this is a greater irritant.

A hearty vote of thanks was accorded to the lecturer, bringing the meeting to a close.

W. G.

THE BUFF WYANDOTTE.

This variety is very rarely seen in this country. It has all the good qualities of the Wyandottes, being a good layer of eggs which are on the small side; a fair table fowl, good sitter and mother, hardy and a very handsome bird. In the States it has more followers, but it appears to have no chance here with the Buff Rock, although its history closely parallels that of the latter. It was introduced to the public by the same men, and it is said that the first Buff Wyandottes were nothing but Rose-combed Rhode Islands Reds of a pale shade. It is not the first time in the history of poultry-breeding that an attempt has been made to popularise the throw-outs of a breed under another name, and it is even whispered that single comb White Wyandottes have been exhibited as White Rocks at the Dairy, and, what is more, have won. But the Buff Wyandotte had other sources of origin, the most notable being the Golden Wyandotte and Buff Cochin Cross.

REDCAPS.

The Redcap owes its name to its large fleshy comb, which certainly has the appearance of a red cap. Although this breed is little known it has a strong following in the Midlands. Their admirers say that as layers Redcaps are unrivalled, but they admit that unless very warmly housed they don't contribute to the egg basket during the winter months. The eggs, too, are inclined to be small. They are good table fowls, with good meaty breasts and white flesh of delicious flavour, said to be indistinguishable from that of the Game fowl. Derbyshire is said to be their native place, and here they are most commonly to be found. The hackles in both sexes should be red, and each feather nicely striped with black. In the male the back is red spangled, but a rich deepish red brown in the hens, each feather to end with a black spangle resembling a half moon. This spangling extends to the wing ends. Breasts and other parts should be as evenly spangled as possible; the eye red, the beak horn colour, legs and feet slate colour. The comb should be large, square in front, taper off to a long straight leader that is carried in a line with the top of the comb. In size 5¼ inches by 3¾ inches in the male, correspondingly smaller in the female.

BRAEKELS.

Belgian authorities tell us that the Braekel is simply the Campine grown to a larger size in the vicinity of Nederbraekel in Flanders, the conditions there being more favourable than on the sandy plains of the Campine country. It is contended that both Braekels and Campines are off-shoots of an earlier variety (the Friesland), and it is argued that the former is an improved and the latter a deteriorated type. The Braekel is larger than the Campine. Males weight from 5lbs. to 7lbs., and females 4lbs. to 6lbs. It is a good layer, but the eggs are on the small side; matures early pullets, often laying at 4½ to 5 months old. It is a fair table bird. The commonest varieties are the Gold and Silver, the markings corresponding with those of the Gold and Silver Campine, except that in the Silver Braekel is a creamy. In this country they are generally confused with the Campine, or have been crossed with the latter to such an extent that they are confused with them. British breeders do not seem to have recognised the merits of either Braekels or Campines, for their popularity has not increased in recent years.

BREEDS OF POULTRY.

A correspondent has written asking for particulars of the following breeds of poultry, and as they may be of interest to others of our readers, we are publishing them here. Two of the varieties to which he refers (Dorkings and Bresse) were described in a recent issue, and to this he is referred. The varieties mentioned are: (1) Columbian Wyandotte. (2) The Buff Wyandotte. (3) Orloffs. (4) Brakels. (5) Redcaps. (6) Black Wyandottes. (7) Silkies. (8) Indian Game. (9) Sicilian Buttercups. (10) Andalusians. (11) Blue Leghorns. (12) Dorkings. (13) La Bresse.

THE ORLOFF.

The Orloff is a Russian breed, and was introduced into this country by Captain Lawrence. It was claimed that it was or is a utility fowl of the highest class. It is a good table fowl, and some of the pullets are good winter layers, and a winter laying strain would not be difficult to build up. It has a deep breast, good wide back, and a voracious appetite. Endeavours have been made to "boom" it in this country, but its popularity does not seem to increase, and it is kept by fanciers chiefly. Its appearance is unique, the muff and bib and curious swirl of feathers at the neck being unlike any other fowl. The egg is tinted, and of fair size. Chicks mature slowly, and want some care in the early stages. It is not a good forager, and, as a rule, wants to be rather well fed and carefully looked after. There are Spangled and Whites, but it is the rich coloured mahogany that is generally seen.

THE COLUMBIAN WYANDOTTE.

The earliest specimens appeared in England about 1900. In the early stages the majority were bred from White Wyandottes and Light Brahmas. There may have been a few mutants from the Silver-Laced Wyandottes. White Orpington and Rock blood has also been used. A club was formed and a standard drawn up in 1906. This led to great improvement in the breed. Mr. L. H. Wace and Mr. W. Hamnett have done much to foster it. Columbians have been popular in America for some years, but the English strains are home-made, and not imported. It is a very attractive breed, true Wyandotte type, beetle green sheen in neck, hackle and tail, white body, bright yellow legs. The object of the club has been to produce a well-balanced bird. Twenty points are awarded for type, purity of colour and hackle; 15 for head and comb, for size and condition; no one characteristic to get more points than another. The breed is hardy, a good winter layer of brown eggs, usually larger in size than the average laid by other varieties of the Wyandotte family, it matures early, and the cockerels are quite good table birds.

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Modern Poultry Feeding.

By TOM NEWMAN.

THE WELLINGHAM EXPERIMENTS—SOYA BEAN INCREASES ITS LEAD.

We may say that with the conclusion of the sixteenth week of the Wellingham experiments that we have come to the end of the winter period. The 40 birds engaged have laid a total of 2,129 eggs, or an average of 53.9 eggs per bird. As I have said before, these are not selected birds, but were all bred from one flock and taken from it for the purpose of the test, so that the performance is a most creditable one. In answer to many enquiries the birds are dry mash fed, and in addition have been given 1½ ozs. of kibbled maize daily, this was increased to 2 ozs. during the last three weeks as it was deemed advisable in view of the heavy production of some of the birds to increase the fats. The weather throughout has been most unfavourable to egg production, heavy rain, fog, snow, and high winds have been experienced. It will be seen that the pen with the lowest percentage of fish meal has increased its lead, and has now laid exactly 100 more eggs than the pen with the highest percentage, or an average of 10 per bird. It is noticeable that during the last period it consumed 9 lbs. more food to produce 14 more eggs, that may be explained by the fact that they had greater need of the extra nourishent in view of their heavier laying. The total cost of producing this extra 100 eggs has been 1s. 3d. more than the pen with the highest percentage of fish meal.

We must not jump hastily to the conclusion that soya bean meal will produce more eggs than fish meal. Indeed, we can say definitely that it will not do so, the object of this test was as mentioned at the start, to find, in view of the high price of animal protein, a vegetable protein which we could use in order to reduce the amount of fish or meat meal to a minimum; this, I think, we have succeeded in doing, but I must say, in answer to two correspondents, that we have no evidence whatever than we can do entirely without animal food for egg production. Indeed I am of opinion that we cannot, and it is possible that the health of the birds would suffer if we tried. I must confess to being a little astonished that Pen C has done so well as to lay an average of 61.5 eggs per bird in the worst period of the year, with less than 2 per cent. animal protein in the total ration. What they would pick up in the run would be so small as not to affect the question, particularly at this time of the year. I regret to say that owing to a mishap with an incubator Miss Malcolm tells me that there will be unavoidable delay in starting the chicken-feeding experiments, but it is hoped to begin next week. I must refer readers to our issue of January 16th for details of the mashes used in the experiments. A word of appreciation is due to Miss Malcolm and Mrs. Pember and their staff for their splendid work, their keenness and attention to detail has added to the interest and ensured success.

PULLET EXPERIMENTS.

"A" Blue Ring.

Ring No.	Jan.	Eggs To Date		Amount Consumed	Cost
121	Mo. 15	33			
228	2	36			
235	21	35	Mash	48lbs.	4/10 .99981
249	22	84			
250	18	60			
337	19	48			
384	22	55	Grain	36lbs. 4ozs.	4/- .54910
388	Mo. 4	29			
401	20	73			
405	19	62			
Total	**162**	**515**		**84 lbs. 4 ozs.**	**8/11 .5489**

"B" Red Ring.

Ring No.	Jan.	Eggs To Date		Amount Consumed	Cost
80	7	28			
206	6	32			
207	10	41	Mash	52lbs.	5/1 .9821
210	11	33			
217	20	58			
271	20	75			
292	18	65	Grain	36lbs. 4ozs.	4/- .5491
303	23	75			
508	17	39			
524	22	67			
Total	**154**	**513**		**88 lbs. 4 ozs.**	**9/2 .5312**

"C" Green Ring.

Ring No.	Jan.	Eggs To Date		Amount Consumed	Cost
213	20	71			
229	21	64			
256	9	56	Mash	57 lbs.	5/6 .4575
257	17	68			
265	18	60			
273	21	64			
410	22	74	Grain	36 lbs. 4 ozs.	4/- .5491
411	22	68			
413	Mo. 3	31			
525	23	59			
Total	**176**	**615**		**93 lbs. 4 ozs.**	**9/7 .0066**

"D" White Ring.

Ring No.	Jan.	Eggs To Date		Amount Consumed	Cost
79	22	67			
138	Mo.	30			
234	2	46	Mash	45 lbs.	5/9 .7095
261	21	67			
333	21	62			
387	20	67			
389	18	58	Grain	36 lbs. 4 ozs.	4/- .5491
392	21	53			
394	Mo.. 5	15			
285	N. Mo. 11	17			
Total	**141**	**486**		**81 lbs. 4 ozs.**	**9/10 .2586**

Current prices as in previous months.

GRAIN RATION:

1½ ozs. for 1st eight days of month. 2 ozs. for the remaining 23 days of month.

1½ ozs. maize for 8 days = 12 ozs.
2 ozs. ,, ,, 23 ,, = 46 ,,

31 days = 58 ozs. per bird. 580 ozs per 10 birds = 36 lbs. 4 ozs. per 10 birds.

SUSSEX GROUND OATS—A CRITICISM.

I have received the following letter from Messrs. E. Dixon and Sons :—

> "We are surprised to read your remarks relating to the purity of Sussex ground oats, appearing under the heading of 'Modern Poultry Feeding' in the issue of 'Eggs,' dated January 23rd, 1924.
>
> Referring to your statement to the effect that it is customary for 10 per cent. Barley to be mixed in with the oats when grinding, we think you must be unaware of the prosecutions for adulteration that have been made by the Ministry of Food (two of them very recently) against Oat Grinders and Retailers.
>
> On several of these occasions the Defence has pleaded the custom of adding Barley when grinding oats for 'Sussex' ground oats, but it has been upheld for the Crown that Sussex Ground Oats must contain nothing but oats in order to comply with the 'Merchandise Marks Act.' In the face of these facts we think you would hardly suggest it to be the practice of the trade to make any adulteration, especially as the recent cases have been given wide publicity in the Press, although, unfortunately, there are cases where ingredients of no food value are mixed with the oats, either to improve the appearance or to lower the cost of the finished article.
>
> As far as your observations concerning fineness are concerned, we do not think that this enters into the question of 'genuineness,' but agree that this is an important point to be considered where the feeding of poultry is concerned.
>
> In view of the controversy that has arisen on the question of PURITY of Sussex Ground Oats, we should like you to find space for this letter in the columns of your paper."

It would have been more correct, perhaps, had I said "it **was** customary" instead of that "it **is** customary" to grind 10 per cent. barley with the oats in order to give them the necessary hardness. I am, of course, perfectly aware of the prosecutions instituted by the Ministry of Agriculture, as particulars of some of these cases were published in these columns, but, in the main, my statement was correct, and these prosecutions have only taken place within the last eighteen months.

The **Sussex** ground oat, as apart from the ground oat, did contain 10 per cent. of barley; it was used for a specific purpose, not as an adulterant, and the general public were well aware of the fact. I was very careful, in what I wrote, to say that the addition of the barley in the quantity named did not detract from the value.

Messrs. Dixon refer to aduteration in other cases. In the Government Laboratories last year it was found that ground oats were adulterated with oat shudes, weed seeds, maize meal, and barley meal.

With regard to their reference concerning "fineness" not entering into the question of "genuineness." On this point I cannot agree with them. We are dealing with the "Sussex" ground oat—that is, an oat ground by specially-prepared stones in the fashion peculiar to Sussex, and more particularly with reference to the table poultry industry at Heathfield. The object of these specially-prepared stones was to grind the oat to a degree of fineness which, up to recent years, had not been approached by any other method. Oats may be coarsely ground, and be genuine ground oats, but they could not be **Sussex** ground oats. I am extremely sorry that anything I wrote should have conveyed the impression that it is the custom of the trade to make any adulteration.

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

LIVERPOOL AND DISTRICT BRANCH.

The Fourth Annual Meeting of the above Branch was held on Wednesday, the 30th January, last, when the following officers were elected :—Chairman, Mrs. Hodgins; Vice-Chairman, Mr. R. A. Currie; Committee: Mrs. Kendall and Messrs. Banks, Brooksbank, Clansey, Connolly, Crosthwaite, and Thomas; and Hon. Secretary-Treasurer, Mr. Cleaver for the first six months, to be succeeded by Mr. Thomas. The Annual Report showed that £895 18s. 4d. passed through the Secretary's hands on foodstuffs orders, which numbered 503. The visits to local poultry farms were not well attended, but that the Winter Monthly Meeting met with greater success, and were fairly well supported. The Statement of Account presented showed that there was a balance on the year's working of £3 1s. 4d., which, being added to the balance forward from the last account of £17 11s. 10d., gave a total of £20 13s. 2d. in hand. There were 87 members who paid their subscriptions during the year.

The February Evening Meeting will be held in the Common Hall, Hackins Hey, Dale Street, Liverpool, on **FRIDAY, the 22nd inst., at 7.0** (not Wednesday, the 22nd, as stated in the notice), when Mr. Harold Gregson, of Bolton, will give a lecture on "Intensive Poultry-Keeping from Chicken-rearing Onward."

NEW MEMBERS.

The number of new members elected during January was 217. That is another record created by the S.P.B.A. One can hardly expect this rate of increase to be maintained, but it is convincing proof of the good work we are doing. It should be clearly understood that when these figures are given, they relate to full members, and not to affiliated societies. I say it is convincing proof of the good work we are doing because the great majority of these have joined on the recommendation of old members.

IMPROVING THE LAYING QUALITIES.

Some years ago we heard of an experiment on novel lines, which was to be carried out in Pasadena. With the aid of a bacteriologist, the owner of a hen which had laid 262 eggs in 300 days, prepared a serum from her, with which he proposed to inoculate the balance of the flock, thinking thereby to improve their laying qualities, or, at least, those of their progeny. Before commencing this experiment, the said owner had communicated with the leading agricultural colleges in the land, and the authorities were practically unanimous in their verdict that next to a direct transfusion of blood by the inoculation process his plan was to be commended, although there was a diversity of opinion as to the method of procedure, one writer claiming that the heavy-laying powers descending through the male line, the males should be inoculated. The owner of a 4,000 Leghorn ranch was said to have made application for enough serum to inoculate his breeding yards. We were told "the potentialities of the discovery were great, and it is entirely within the range of possibilities that colour can be changed as well as egg capacity by simple inoculation." I think that experiment must have proved a failure, as that is over five years ago. It was on a par with the discovery of the American doctor, who made his hens lay preserved eggs by giving them formalhyde. This joke was taken seriously by some of our English papers, and I have always thought it was the explanation of the lady writing to me to know how to make a hen lay preserved eggs. But to return to the subject. Would it be possible by transfusion of blood from a good layer to a bad to turn the latter into a good layer. There is a nice little problem for our scientists. After all you know both good and bad layers start their lives with approximately the same number of cocytes or potential eggs, and one delivers 50 per cent. of the goods, and the other only 10. When you come to heredity in such a case, what does it mean? Isn't it a question of the different use made by the birds of the food consumed, the one turning it into eggs, and the other into flesh. We know that no amount of good feeding will turn a bad layer into a good one, and that a really good layer will exhaust herself if she is under-nourished; drawing on the body reserves even for the lime-salts which may be deficient in her food. Why do they make such different use of their foods? That may seem a futile question, and someone will say I have been drinking strong coffee, but just think it over.

THE LAYING TESTS.

I have been interested in reading the final report of the N.U.P.S. Test at Bentley. Mr. Leigh draws particular attention to one unsatisfactory feature, viz., the very large percentage of second grade eggs. This he attributes very largely, if not entirely, to breeding for abnormal numbers. In glancing through the records I must confess to being a little startled at the high percenetage of second grade eggs laid by White Leghorns; in five or six cases over 50 per cent. of the eggs laid were second grade. It was noticeable that the trouble was not so much in evidence in the leading pens, that to some extent is due to the method of scoring adopted. The Australorps offended badly, but the Wyandottes were nearly as bad. It is satisfactory to see that the death rate of the whole flock was very low, but 50 per cent. of these were due to ovarian troubles, and Mr. Leigh remarks that these troubles are undoubtedly on the increase. The average production of the flock for 48 weeks was 174.23 eggs per bird. White Leghorns leading with 185.78, Wyandottes following with 175.07. Then came Anconas, Black Leghorns, White Bresse, Minorcas, Rhode Island Reds, Buff Rocks, Light Sussex, Exchequer Leghorns, Australorps, Buff Orpingtons, in the order named, with White Orpingtons, Speckled Sussex, Columbian Wyandottes, and Barnevelders tailing off. Black Leghorns were said to be a feature of the test, Mr. G. B. Metcalfe and Mrs. Nash's pen putting up good scores, and there is every indication that the breed will make good headway in the future. One word of sound advice is given, that is as to the condition of the pullets on arrival. Far too frequently they are sent in poor, lean condition. How often have I draw attention to this in these columns. Warning is given as to the increase of broodiness among the non-sitting breeds—even in the oldest strains it is said to be in evidence. It was found more difficult to break the desire to sit in a light breed than of a heavy breed pullet.

Some pertinent remarks are made as to the duck section. The record put up surpassed those of any previous year. But the question is asked if it is now in the true interests of the industry that this abnormal rate of production should be encouraged. The conclusion arrived at is that it is not. Two of the main recommendations of ducks as egg producers has been: (1) Their comparative freedom from serious disease, and their general hardihood. (2) The large size of their eggs. It is said that these two most valuable characteristics show signs of steady decline. Mr. Leigh is a cute observer, and he attributes the loss of these two valuable characteristics to breeding for abnormal egg production. The average production in the large flocks was 188.25 eggs per bird. In the small flocks 204.65.

In the championship section Mr. Frank Snowden won with White Leghorns, with the wonderful record of 2,114 eggs for the 10 birds. While Mr. Hughes was a good second with White Wyandottes, this pen laying 2,048 eggs, all of which scored under the rule regarding size.

EXPERIMENTAL SCHEME FOR INSPECTION BY THE MINISTRY OF AGRICULTURE AND FISHERIES OF POULTRY FARMS PRIOR TO REGISTRATION BY THE SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

The Ministry of Agriculture and Fisheries, having received Treasury authority, expects shortly to commence the inspection of those poultry farms in respect of which members of the S.P.B.A. have applied to that Society for registration in the Society's Register of Breeders. These inspections will be made by the Ministry over a period of twelve months from 1st January, 1924, purely as an experiment. At the end of that period the experiment will cease, unless, as the result of the experienced gained, the Ministry should consider it desirable, and find it practicable, to continue it with such modifications or extensions as may be found necessary. It is an important condition of the scheme that it shall involve no charge on public funds.

For many years past evidence has been available to show that a reliable register of good breeders of trap-nested strains of stock poultry would be of considerable help to beginners in poultry-keeping, and even also to poultry-keepers of greater experience who might require to purchase stock poultry of laying strains. The S.P.B.A., having for some years conducted a register with this object in view, recently came to the conclusion that the time had arrived when the Society should make an effort to increase the value and reliability of its register by arranging for impartial inspection of poultry farms prior to registration, and by refusing to register those farms which on inspection proved to be below the standard desired by the Society. The Society accordingly made formal application to the Ministry asking that the Ministry would allow its Small Livestock Inspectors to carry out these inspections on behalf of the Society. The Ministry, when considering this application, satisfied itself that no other Society was conducting a Breeders' Register such as that of the S.P.B.A., and that there was no evidence to suggest the likelihood of any other Society proposing to do so in the near future. The Ministry therefore decided that this was an opportunity to conduct a useful experiment which, being limited for the time being to one Society, it was possible for the Ministry to undertake with the small number of inspectors available, and if proved successful at the end of the year might be capable of extension. The Ministry accordingly obtained at the outset an assurance from the S.P.B.A. that should other Poultry Societies desire to take advantage of the scheme at a later date the S.P.B.A. would be prepared to participate in any Joint Committee which might be established for this purpose. This assurance has recently been repeated, and the Ministry desires that it should be made known to any other societies that may wish to participate in the scheme.

The conditions under which the Ministry will carry out inspections under this experimental scheme are as follows :—

(1) The Ministry of Agriculture is prepared to carry out, at the request of the Scientific Poultry Breeders' Association, for an experimental period of one year, commencing 1st January, 1924, inspections of the plant, stock, and methods of poultry management, of members of the Association resident in England and Wales, who wish their names to appear in the Association's Register of Approved Breeders.

(2) Responsibility for granting or withholding certificates of registration will rest with the Association, who will conduct all correspondence and clerical work arising in connection with the scheme, including the fixing and collection of fees from breeders, etc. No name shall be included in the Register except on the recommendation of the Ministry's Inspector. The responsibility of the Ministry will be confined to the work of inspection and incidental duties relating thereto.

(3) The Association will pay to the Ministry a fee to defray the cost of each inspection, the amount of the fee being fixed at such a sum as will ensure that no part of the cost will fall on public funds.

(4) All reports by the Ministry or its Inspectors will be "confidential," and will be supplied for the sole purpose of enabling the Council of the Association to decide whether or not to grant certificates of registration. No such report will be published or communicated either to the breeder concerned or to any other person. No list of breeders who have failed to pass the test of inspection will be published.

(5) The Inspector's reports will deal with the following points :—

- (a) Whether the general health of the stock is satisfactory, so that hatchable eggs and vigorous and healthy chicks are likely to be produced.
- (b) Whether the stock is typical of the breed.
- (c) Whether an efficient method of trap-nesting and recording is carried out, and in particular whether :—
  - (1) a sufficiency of trap-nests are provided ;
  - (2) the monthly record sheet, with preceding tables carried forward, is exhibited in each house, the previous monthly records being available for inspection.

(N.B.—Trap-nesting may be carried out either for the four winter months or for the full year.)

- (d) Whether house and run are well designed and of adequate size.
- (e) Whether the general management is of a high standard.

Ministry of Agriculture and Fisheries,
10, Whitehall Place, S.W.1.
28th January, 1924.

FIRST QUARTERLY REPORT—FIFTH MIDLAND LAYING TEST.

(November 5th, 1923—January 27th, 1924.)
84 days.

A survey of the first three months of this Fifth Midland Test is highly satisfactory. The weather conditions have been subject to abrupt changes both in temperature and atmosphere, raw, wet, windy days often alternating with snow and frost, and sometimes fog. The mean temperature for the month is 31 degrees Fahr.

The feeding has been as usual, Dry-cum-wet mash and grain. The method employed is as follows :—7.30 a.m. Grain (consisting of wheat, oats, and kibbled maize), wet mash at mid-day, and a grain feed again at 4 p.m. ; average of 1 oz. of corn per bird being scattered in the run when fine, and in the litter inside the pens when wet. The dry-mash box is available at any hour of the day.

A number of birds went into a partial moult on arrival, but these soon recovered and commenced production. Seven birds moulted last month, notably numbers 1, 5, 53, 65, 105, 106 and 123, and four birds have been broody—on W. Wyandotte No. 440 for the second time during six weeks. The other three birds are R.I.R. 262, also W. Wyandotte 145, and L.S. 339, which have both laid throughout their period. The egg yield is good, the daily average reaching 50 per cent. in the second month without any subsequent decrease. Egg size and quality as determined by specific gravity is excellent, only a very small percentage of the eggs are second grade and none under weight.

The average percentage of eggs per bird for the different breeds taken over the three months is as follows :—W. Leghorns, 33 per cent.; W. Wyandottes, 47 per cent.; R.I. Reds, 40 per cent.; L. Sussex, 39 per cent.; A.O.V. Light Breed, 36 per cent.; and A.O.V. Heavy Breed, 28 per cent.

The Leghorns have felt the cold and changeable weather. With the improving climatic conditions they are gradually increasing their condition and production, comparing more favourably with the Wyandottes and Reds. The leading position in the whole Test is held by a pen of White Wyandottes, the property of Messrs. Fowler Brothers, Earlswood, Nr. Birmingham, with 253 eggs for the three months from four birds—an average of 63-21 eggs per bird during 84 days. Second place is taken by Wm. Gee's birds, also W. Wyandottes with 247 eggs to their credit. The above two pens of birds have laid only eight second grade eggs between them during the whole three months. Several birds, numbers 436, 438, 171, 172, 173, having laid for consecutive periods of 28, 27, 25, 24, 23 days, nesting for one day and then repeating the sequence.

Several pullets showing signs of canker or chicken pox were returned to their owners, and have been replaced by healthy birds. Very few birds are on the sick list, and three only for slight colds. One death has been recorded, and the body sent to the Ministry of Agriculture and Veterinary Station, whose report stated death to be due to enteritis and fatty degeneration of the liver.

Noted visitors around the Test Grounds this month were Mr. T. Newman and Mr. W. Powell-Owen, and Mr. Price, County Instructor for Gloucester.

SIX LEADING PENS—WHITE LEGHORNS.

Owner.	Total Eggs in 84 days.	Value.	Position to date.
H. Boxall, Dorking	170	£2 5 8	1
E. Harrison, Knutsford	161	£2 3 4¼	2
Capt. Rutherford, Staplehurst	159	£2 3 1¾	3
Clophill P.F., Ampthill	150	£2 0 10¾	4
F. J. Verrell, Chard, Devon	149	£2 0 7¼	5
Williams and Mees, Wormley	147	£1 19 11¾	6

SIX LEADING PENS—W. WYANDOTTES.

Fowler Bros., Earlswood	253	£3 8 10½	1
H. W. Gee, Lickey, Bromsgrove	247	£3 7 1½	2
S. & J. Greenall, Grantham	239	£3 5 2½	3
N. F. Phelan, Cleave Barton, Devon	222	£3 0 3¾	4
Ashbrooke and Brooke, Sandbash	207	£2 15 7	5
G. K. Rayner, Grantham	201	£2 14 9¾	6

SIX LEADING PENS—R.I. REDS.

Major Kingscote, Newport Pagnell	213	£2 17 10½	1
O. Merchant, Shipston-on-Stour	156	£1 19 8¼	2
Wilson Beattie, Northants	146	£1 19 6¾	3
Easton P.F., Norwich	146	£1 19 5	4
Mrs. Simpson, Carlisle	142	£1 18 7	5
Wm. Currie, Deskford	128	£1 14 7	6

THREE LEADING PENS—L. SUSSEX.

Fred Gardner, Stalham	176	£2 7 11½	1
F. B. Welch, Bewdley	144	£1 19 1	2
Mr. & Mrs. Jacobs, Chatham	119	£1 12 2½	3

THREE LEADING PENS—A.O.V. LIGHT BREED.

G. Woodbridge, Anconas	111	£1 10 2¼	1
M. Brady, Anconas	103	£1 7 10	2
R. B. de Vere, Packford, B. Leghorn	81	£1 4 8¼	3

A.O.V. HEAVY BREED.

H. Thomas, Buff Orp.	159	£2 6 0	1
Major Shewell, Barnevelders	99	£1 6 5½	2
Wm. Hamnett	83	£1 4 0½	3

Correspondence.

CO-OPERATIVE FARMS.

To the Editor of " Eggs."

Dear Mr. Newman,—I read with very great interest " Watchman's " letter in your last issue, advocating co-operation as a practical means for the immediate realisation of a 50,000 Hen Farm, and my excuse for writing this letter must be that certain of his remarks were addressed personally to me.

Let me at once say that the co-operative idea appeals very strongly to me as a possible method of attaining the Mammoth Farm ideal, and obviously overcomes the main objection made by the opponents of my privately or company-owned concern, namely labour difficulties. I personally am still convinced that this difficulty has been much exaggerated, but I must keep off that point in this letter.

Will "Watchman" get into communication direct with me, with the idea of further discussion, as there are so many little points in a scheme of this nature that require elucidation, and which I cannot touch upon in this letter.

"Watchman" apparently is very keen and impatient of delay, but I am afraid that next Lady Day is rather short notice, even if he has in mind a suitable 300 acre farm at a rental of £300 per year.

I am sure myself that some scheme of this nature could, under proper management, be made a very great financial and social success, and, as far as I am concerned, I would be only too pleased to do everything in my power to help to get it going.

Given the 25 true and trusty men to work with, there is no shadow of doubt initial difficulties—of which there must be many—would be overcome, and the scheme would develop into something much bigger than the much-discussed 50,000 Hen Farm.

I should like to take this opportunity of thanking "Watchman" for his kind remarks about myself, and I only hope that I deserve them.

In conclusion, let me say this: That I would much like to have a finger in the Co-operative Poultry Farm Pie.

Yours faithfully,
HECTOR M. MORISON.

WHAT **DO** THEY WANT?

To the Editor of "Eggs."

Dear Mr. Newman,—In his summing up "Watchman" says (on page 89 "Eggs"):—There are a number of people who are unable to get a place where they can start, except at a prohibitive figure."

I used to believe that, but it is time that view was knocked on the head, for I have tested the truth of it.

During the past few weeks I offered some **grass land** for sale, particularly suited for poultry and fruit farming as it sloped south, was well drained, sheltered from north-east winds, and virgin for poultry.

Buyers could have had as small a plot as one acre with a twenty yard frontage on a hard road, or larger areas up to twenty acres, which was the acreage I set aside for this purpose.

I further offered to get four-roomed bungalows erected for £125 and upwards, together with the use of two unoccupied cottages during the erection of the same.

In order to ease the alleged land hunger and help a few people to get a start, I fixed the price as low as £15 per acre **freehold,** and all this within fifty miles of London in a beautiful part of Kent, with decent train service, handy markets, either at seaside or London suburbs, etc., etc.

On this point I can speak authoritatively, as I have built up a thriving egg farm on land adjoining. The land was advertised in "Eggs" and other papers. I admit I expected to be overwhelmed with replies, but beyond four or five letters and one caller nothing happened.

In conclusion, I would say I have withdrawn the land from sale, and shall only smile when I hear of people who cannot get land except at a prohibitive price.

Therefore I ask, "What DO they want?"

Yours faithfully,
MOCKBEGGAR.

INSPECTION OF POULTRY FARMS.

To the Editor of "Eggs."

Sir,—The article "A False Step" in your contemporary "Poultry" will be read with regret by a large number of readers who are anxious for that spirit of Unity and Progress which you so rightly advocate.

The attitude adopted by those who are decrying the action of the Ministry of Agriculture in the matter of the scheme for Inspection of Poultry Farms is not calculated to encourage future support from a Government Department which has so far given such cordial assistance to schemes likely to benefit the industry.

The object of the Ministry of Agriculture is to help on a project which is likely to be of great public benefit after it has been properly tested out.

The S.P.B.A. with very commendable energy and foresight initiated a scheme which received the approval of the Ministry of Agriculture to the extent of giving it an experimental period of one year. Surely, then, the other Societies and the poultry public generally should bless and praise the Ministry for the help it is giving, and not blame it for only making a trial period, which, if successful, can be adopted by other Societies.

That other Societies may participate in the scheme after the "experimental period" has been made has been made clear by the Ministry of Agriculture, so that there can be no foundation for any accusation of favouring one Society above another. Further, it appears to have been overlooked that the scheme was put forward by the S.P.B.A., and that the financing and responsibility for granting certificates fall upon the Society and not upon the Ministry.

The notes by "Broadcaster" in the same issue are highly amusing, but may give some of the readers a wrong idea of the working of the scheme. The suggestion that the Ministry could be stampeded into fathering any scheme is as far from the truth as that the scheme will permit of a poultry plant being dressed up for inspection on one day and allowed to drift into a state of neglect for the rest of the year.

In justice to the Society that is doing such pioneer and valuable work for the industry as well as for the sake of Unity and Progress, it is to be hoped that the Poultry Press will enlighten its readers on the real state of affairs and not be "stampeded" into unfair criticism of a Government Department which is after all only doing the best for the industry in away which does not meet with the approval of everyone.

Yours faithfully,
P. HEDWORTH FOULKES.

COST OF REARING.

To the Editor of "Eggs."

Dear Sir,—Since you published my letter in the December 9th issue of "Eggs" with reference to the cost of rearing chicks, I have had numerous letters from readers asking for further costs, and in many cases giving their own results, which vary greatly. I therefore give below cost of rearing to four months in the hope that it may be of interest :

	£	s.	d.
Continued Total Cost to eleven weeks	3	3	6
From eleven weeks to thirteen weeks :—			
78 lbs. mash		10	10
50 lbs. mixed corn		5	8
	4	0	0
From three months to four months :—			
112 lbs. mash		16	0
132 lbs. mixed corn		14	3
	£5	10	3

Cost of 44 chicks reared to four month	£5	10	3
Cost of each chick for four month ...		2	6¼

Two weeks ago I took six average cockerels out of the pen and weighed them, their total weight being 23 lbs. To-day the same six birds (which have been running separate) weigh 274 lbs., the heaviest being 5 lbs., and the lightest 4¼ lbs. These are slightly above the average now, as they have had a better chance by themselves. Of course, the weights are nothing exceptional, but are given to show that the birds are in good condition, although the cost of rearing to four months is only slightly above 2s. 6d. per head.

I should like to mention here that I have always used 5 per cent. charcoal in the mash, and should be pleased to hear other members' opinions on the value of charcoal.

Yours faithfully,
G. STANLEY SARSON.

CO-OPERATIVE FARMING.

To the Editor of "Eggs."

Sir,—"Watchman" does not explain how he proposes to get his birds this season if a farm could be secured within 25 miles of London, possession to be had at Lady Day, nor does he state how many acres would be devoted to each unit of 1,000 birds and the land to grow their green food, etc.

Had he been an old reader of the poultry papers he might have noticed that in 1913, and again about three years ago, I advocated a somewhat similar scheme, but on more modest lines. I inserted several adverts and wrote a letter to the papers. A considerable number of replies were received.

Many of them require the Farm to be near London, some wanted one thing, others another, but after a lot of correspondence "they all began to make excuse," with the result that not half a dozen "competent" real workers could be found who had a capital of £500 to £1,000 each, and I infer that to carry out "Watchman's" idea, considerably more than £1,000 each would be needed. I hope this will not be taken as a desire to throw cold water on the suggestion.

T. N. S.

A CAMPAIGN FOR MEMBERS.

To the Editor of "Eggs."

Sir,—There are hundreds of thousands of poultry-keepers in this country producing many millions of pounds worth of valuable food each year, yet the Poultry Industry is of practically no political importance. This is perhaps hardly surprising considering our deplorable lack of organisation.

The institution of the National Poultry Council was undoubtedly a step forward, but its usefulness is very much hampered by the ridiculously small amount of support which it gets from poultry-keepers. I doubt if there are as many as 12,000 poultry-keepers who belong to any Poultry Club or Society, with the result that these organisations—the largest of which has a membership of not much exceeding 5,000—are so short of funds that their activities are necessarily very limited, and present members obtain very little benefit in return for their subscriptions.

This, however, is not the fault of the Societies or their Secretaries, but of the vast number of poultry-keepers who have not yet realised that the well-worn maxim "Unity is Strength" applies very aptly to the Poultry Industry.

If anything like a reasonable percentage of poultry-keepers would only join one of our Poultry Societies, these organisations, working together, would then be powerful enough to undertake work of a much more ambitious nature, and, as voicing the views of the Poultry Industry generally, would be able to assist a strong political influence in favour of all their members.

I suggest that during the coming season our Poultry Societies should launch a determined and thorough campaign to obtain new members. In this endeavour they will be backed up by all "live" poultry-keepers. Such a campaign supported by the publicity which I am sure the Poultry Press would give in its columns need not be expensive. Existing members could be of great help in enlisting new recruits, if they would add a few lines to their advertising matter and to their letters to other poultry farmers exhorting them to join one of these Associations.

The Poultry Industry has now a sounder footing than it has ever had before, and there are immense opportunities for future development, but without the whole-hearted support of the general body of poultry-keepers we cannot hope to make verv rapid progress. I, for one, will be glad to do anything I can to assist in the better organisation of the industry, and hope many other poultry farmers will follow suit.

The views of the Secretaries of the N.U.P.S., S.P.B.A., and of the Poultry Club on this matter would be of interest .

Yours faithfully,

F. C. ATKINS.

Hermitage, Berks.

Testimonials.

"May I also thank you for your great help, through your paper 'Eggs,' to me and my poultry. I have followed your instructions, and last year I brought up 504 chicks out of 517 hatched and all with hens. I did all the work with hens and chicks without any help until the chicks were a fortnight old. My housework to look to also. The birds did not give me a bit of trouble, although I started hatching 25th February and ended at the end of March."

Yours faithfully,

(MRS.) T. A. YOUNG.

30, Pitt Street, Mexboro', Nr. Rotherham.

"Why, oh, why, is the S.P.B.A. publication, 'Eggs,' not more widely advertised?

When I consider the type of information I have gleaned this last six weeks, after nearly five years of the other stuff, I feel that I ought to be able to claim damages against somebody for **lack of knowledge and time wasted.** There must be some others in the same boat as myself, too."

FRANCIS F. F. WALTON.

The Farm, Pulford, Nr. Wrexham.

"May I thank you for all the success I had during my two years of poultry-keeping under your valuable guidance. Had it not been for the paper 'Eggs" I should have been lost, as I had had no experience before. As it is I am able to show good profits. I have spoken to several people about your paper, and they have taken it with the usual success. Wishing your paper every success."

HENRY W. HUTCHINGS.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Waroop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package. and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

P. B. (Bedford). The dried yeast is a fair sample, but you cannot afford to buy it at 3s. for 12 lbs. The price for the clover meal (1s. 8d. for 7 lbs.) is preposterous. It is a fairly good sample, but when clover meal gets more than half that price it is an uneconomical food. The bran at 2s. 9d. for 28 lbs. is good, and equally as good as that at 3s. for 28 lbs., but the barley meal is too coarsely ground. The maize meal is very good, and the "dan" or middlings quite a fair sample, although a little dear. The ground oats are a good sample at 3s. for 14 lbs., but you cannot keep poultry profitably if you buy in this way. Could you not induce one or two neighbours to co-operate with you and buy in cwt. lots? The saving would be very considerable. For anyone to incubate and rear a dozen R.I. Red pullets for you to eight months old, I think you ought to be prepared to pay 12s. 6d. each. Of course, the responsibility is the rearers, and there is the labour and the food to provide, and also housing. To make eggs infertile prick the thick end with a needle, or hold that end in very hot water for a few seconds.

H. E. K. (Bakewell). I cannot see how you can go to the breeder, from whom you are ordering the White Leghorn six-weeks-old pullets, for a cockerel. Your better plan will be to get a male bird to mate to your pen from some other breeder who has birds of the same strain. There are plenty of these who advertise in our Register. From what you say it would be a grave mistake to obtain a cockerel from the same breeder, as his birds appear to be too closely related. If you go to the other breeder you mention you will be crossing strains, and that would also be a mistake, particularly with birds bred from such highly-fecund stock as yours.

E. D. (Huddersfield). It is rather impossible for me to help you, because beyond telling me how you ran the machine and that you had 30 per cent. dead-in-shell you tell me nothing. I do not know in what conditions the eggs were which did not hatch. It would help me considerably if you were to say what the fertility was, at what stages the chicks died in the shell, etc. So far as I can gather you ran the incubator according to instructions, but I am not able to say whether you had an excess of moisture or not. It is so essential when you ask for advice in this matter to send the fullest particulars. Then there is always a possibility of the eggs themselves being at fault. With 30 per cent. dead-in-shell I should consider that first if I were you. Assuming that your thermometer was correct and nothing abnormal happened during incubation, one must turn to the eggs themselves. If you will let me know fuller particulars I will try to help you. As to how long a chick can remain in the incubator after being hatched without it being detrimental to it, that is difficult to say. Of course, in an incubator with a number of chicks there is always considerably more carbon dioxide than there would be in a brooder, as the ventilation would not be so good. I do not believe in leaving chicks in the incubator for a long time, especially in the hot-water machines, where they should be cleared at least every eight hours. When the chicks, which have chipped the shell late, say on the 22nd day, do not hatch, it is more often due to lack of vitality than anything else.

C. B. (Kirby Lonsdale). Six per cent. oil would not be excessive in the soya bean meal. Presumably the oil from this has been extracted by a crushing process, while the "extracted," which contains only 1 per cent. of oil, has been extracted by some acid. The 6 per cent. is all right.

W. E. (Fleet). The sample supposed to be made to my formula is not a good one. It contains a lot of husk, and the ingredients generally are inferior. I do not wonder the birds do not eat it readily. It is poor value at the money.

J. H. (Manchester). Thirty-five eggs in 35 days is excellent laying for your Wyandottes, but it is not nearly a record. (2) It would not hurt if you left the eggs for 50 hours before turning, nor would it make any difference if you began at 46. (3) You should put the eggs in the incubator when it registers 103 degrees, not 105. Regulate the temperature then so that it runs at 105 the first week, 104 the second, and 103 the third. You must not allow such a high temperature as 107. (4) Give the green food to the chicks after they are six days old—that is, from the time of hatching. (5) Do not feed the chicks by artificial light. If they have the last feed at 5.30 now, it will answer. (6) Give the mineral mixture in the first week. (7) Turn the ducks' eggs at the same as you would the hens'. Remove one felt on the 26th day and let the other remain.

"Puzzled" (Woolwich). You say you are feeding on my formula, and the birds get 2 ozs. grain and 2 ozs. mash just before going to roost. I suggest that you reverse this process and give 2½ ozs. of mash, weighed before scalding, per bird as the first feed, and 1½ ozs. of grain as the last feed with a small scratch feed of grain about midday. Your birds have been consuming too large a proportion of grain to mash, consequently they have not enough protein. I think you will find this will help you.

D. W. (Isle of Man). The Indian meal is a fairly good sample, rather coarsely ground, but I think the price is a little high. The seconds are quite a good sample, much superior to the thirds, which are very poor quality. The maize gluten is a moderately good sample, but you will see the warnings which I have given in these columns against the use of this of late.

Some Fruit Growing Notes to Help Poultry Keepers.

By F. W. WHEELER, F.R.H.S.

HOW CAN I FIND IT?—I think many have had the experience of reading an article in a paper, or magazine, and then some weeks, or even months, afterwards desire to refer to it but cannot put their finger on the spot.

An index often comes in useful, but this will not always supply the need, because if the article is one of a series then it is a hunt for the particular number dealing with the point or subject about which we want to refresh the memory.

A good many like to use the scissors and cut out pieces to paste into scrap books, arranged under various headings, but this again does not always meet the case, particularly if the cutting is more than one column in length. So many friends have said to me that they have continually marked numerous pieces to be saved for further reading; some have got as far as the cutting out, but there it often ends. I have gone even a step further and managed to get a respectable collection of useful tips pasted in, etc., but it is still an incomplete job.

I now work on a different plan, which I find more convenient with such limited spare time, and perhaps it may help others if I mention it here.

On the outside cover of the periodical I write in ink the heading (or a note) with number of page, and these copies I keep in heaps thus, I find them very easily and quickly turned over for reference. Copies which appear to be of no special interest I cast aside, tearing off a corner of the cover as a mark of "not wanted."

As a result of some remarks in correspondence, etc., I am led to think that a REFERENCE SUMMARY of these fruit growing notes might be useful, so I have put together the following titles in the hope that those who have been interested in my various "notes" may find it helpful for quick and easy reference, commencing with December 27th, 1922, page 372, in "Eggs."

FRUIT WITH POULTRY.

Good and marketable apple trees to buy, then varieties to plant together to help polination, January 3rd, page 2, further polinisation notes, October 3rd, page 222.

Type and age of trees to order, page 3.

Preparing the holes and distances apart for planting (Jan. 24th, page 47).

Planting hints and staking (Feb. 14th, page 92).

Renovating old fruit trees (Feb. 21st, page 110).

Spraying and Sprayers (Feb. 28th, page 124).

Spring Spraying (April 18th, page 249).

Winter Washing (Jan. 30th (24), page 83).

Need of Manuring (May 9th, page 294).

Which manures and quantities (May 23rd, page 327).

Further remarks on manuring (June 20th, page 395).

Pruning: Sundry points (March 21st, page 189).

Summer Pruning Advantages (July 11th, page 22).

Ditto (Sept. 5th, page 152).

Other Pruning Notes (Dec. 18th, page 432).

Ditto, "Tipping" (Jan. 2nd (24), page 5).

Ditto, Treatment of Special Varieties (Jan. 16th, page 49).

Root Pruning (Dec. 5th, page 385).

Picking Fruit for Market (Sept. 5th, page 152).

Windfalls and Poultry (Sept. 19th, page 185).

Grease Banding (Sept. 19th, 186).

Windscreens: Their Importance (Oct. 17th, page 251).

Red Currant Pruning (Oct. 31st, page 293).

Black Currant and Gooseberry Pruning (Nov. 7th, page 311).

Raspberries: As a Side Line (Nov. 21st, page 350).

All the above subjects can be considerably enlarged upon, and many only briefly deal with the matter, but I have always tried to keep in mind that the information given is for poultry-keepers and not for a purely commercial fruit grower; one subject in particular strikes me as lacking, and that is the feeding question and the time for and use of these manures, but I must not start a fresh topic to-day.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

POST-MORTEMS.

"D." I find pneumonia in some and coccidiosis in others of the chicks sent. It may very well be that the pneumonia cases were first caused by the erratic temperatures mentioned, but the coccidial disease must have been passed down in the egg of a recovered bird, or such advanced products would not have been found in the caeca. Try the catechu and iron treatment, giving fifteen grains of catechu to the gallon of water during half the day, and fifteen grains of sulphate of iron during the other half. Take every means of disinfection, and burn the dead.

"B." Yes, it is infectious pneumonia, and every means should be adopted to prevent its spread. See replies to pneumonia case in current issue of "Eggs." This is not the pneumomycosis form, and there is better hope of prevention by tonics and disinfection. Remove all suspects and burn bodies, and give water with 20 grains of citrate of iron and quinine exclusively for drinking.

"S." The pullet no doubt died of pulmonary apoplexy, but this was preceded by great enlargement of the heart, and dropsy of the sac, which was filled with fluid and much distended. This is not very likely to have been the cause of your other losses, unless some such poisonous seeds as aconite or digitalis were present in the food, or could have been picked up. I note that the same feeding in previous years brought goood results, but may remind you that at any time you may get accidentally adulterated samples from the best of dealers, as they do not themselves know. Asiatic pulses with toxic substances in them are constantly finding their way into poultry foods, and as they are slowly cummulative in effect, they are not suspected. I would suggest putting aside the present stocks, if you have any that are not home-grown, and feeding from an entirely different source.

"H." The chicks had pneumonia of the kind associated with lung poisoning by bad air or improperly distributed heat not the fungus affection referred to in reply to others, which please see in "Eggs" any week about this time of year. The liability to become infectious should be taken into consideration, and all necessary precautions taken, including fortifying with tonics, such as citrate of iron and quinine, 20 grains to the gallon of drinking water. Two letters this morning speak of arrest of the deaths a few days after adopting such treatment, and many others last year.

Miss M. E. B. Apoplexy was the cause in this bird. She was very heavy, and the heart and other organs so loaded with fat as to be unable to function. Your flock should benefit by a fast and a few morning doses of salts.

"W." One had pneumonia, and the cause of death was doubtful in the other. Treat the matter as if infection had been definitely proved. Many good reports have been received as to arrest of pneumonic disease after a few days on the iron and quinine.

Miss W. I. H. This was a case of pneumomycosis, due to aspergillus fumigatus infection, which you will see several times mentioned in other reports, and need not be repeated. From your use of "t.d.s." for three times a day, I may suppose you are connected with the medical profession, and will be interested in viewing the specific lesions in the lungs. I am, therefore, sending the chick back, and invite your attention to my incisions into the dense substance in the lungs which characterises this disease.

Mrs. D. R. B. Pneumonia in acute form in both cases. They have grown fast, and are rather bald and susceptible to changes of weather. Mr. Newman's rations are preferable to the scale you mention. Feed up and fortify and give iron and quinine. Remove all droopers and burn. Disinfect, but don't put chicks back into a damp brooder.

"H." I regret to inform you that it is the dreaded B.W.D. It may be introduced in a variety of ways, and it has been experimentally demonstrated that the bacillus pullorum or causal organism is carried in the ovarium of recovered pullets, and passed out with the egg, so that the chick is infected at birth. This often accounts for the very early date at which the symptoms are manifest. Inoculation with cultures obtained from the ovarium of a pullet produced an 82.5 per cent. mortality. Endeavour to confine the trouble to those in contact, and do not let the person who attends to them have anything to do with others.

"Ulster." A broken egg, rather high up in the tube, was the trouble in this case.

"B." The heart of the mutilated corpse was a normal one. The other two were typical examples of infectious lung disease by the fungus aspergillus fumigatus. I am returning them for you to see, and recognise another time. You will find solid-looking bodies in the lung substance much like yellow split peas, and of about the consistence of cheese. They are frequently mistaken for tuberculosis, but T.B. is not usual in the very young. No treatment is of use when once infected. Bodies should be burned, and disinfection carried out thoroughly.

F. H. C. The Leghorn cockerel had gout of the hock joint. Early treatment with iodine painting and salicylates, following on a brisk saline purge, would probably have put him right. I hope the Editor will shortly find space for some notes on gout and rheumatism in birds. You do not seem to have read the instructions carefully.

E. R. S. Ruptured uterus, escape of contents, peritonitis. This is a frequent end to the most prolific layers. It is a case of overcrowding. She was full of yolks of large size.

F. H. There was kidney disease, enlarged heart, and the ovarium mortified. She was the subject of rickets, but not of any infectious disease.

"England." The chicks had pneumomycosis, caused by the presence of spores of the fungus aspergillus fumigatus, which are almost always present in great numbers in moss litter, and for this reason alone should never be used for chicks. No treatment of the infected is of any use. They should be strengthened to resist by iron and quinine at the rate of 20 grains to the gallon of drinking water (of the citrate). To learn how to read the results of post-mortem examinations you need to study anatomy and physiology, and then pathology, which includes a fair amount of dexterity in the use of the microscope. Those senders of dead birds who ask a string of questions have no idea that they are requesting a concentrate of a life's study and the essence of all the books hitherto published, and to be presented in tabloid form, and with the option of asking more questions and expecting a continuous correspondence. It is simply impossible to comply, or to supplement letters which give the main facts. I am snowed under with work, and must ask writers of voluminous letters not to regard it as a discourtesy on my part in insisting on the non-conformate conforming with the rules. The Editor was of my opinion that some help might be given to readers if they would read answers given to questions other than their own, and I wish to respectfully suggest that they should do so.

L. P. The chick had pneumonia of the accidental kind, but always liable to become infectious, like roup following on ordinary catarrh. A seed bed is offered for the ever present germs. Brace them up to resist. See other replies.

W. G. S. There was a mass of so-called egg tumour, weighing just under a pound.

"H. G." Your diagnosis of "egg trouble" is confirmed by post-mortem examination. The duct was ruptured and the walls bled white. A cluster of yolks had been crushed. She was much oppressed by internal fat in the chest as well as abdomen. You need to lower blood pressure by abstinence and a few saline doses in the morning feed.

G. T. P. "Chilled," would describe the case in one word. The peritoneum and the bowels were intensely inflamed, and the lungs acutely congested.

"W. F. G." The Black Leghorn pullet had a malignant tumour at the base of the tongue and extending into the gullet. The yellow cheesy substance was not that of diphtheria, but resulting from mouth breathing and evaporation, such as may be found on the tongue of the sweetest babe who sleeps with his mouth open. Carcinoma is not known to be contagious.

C. A. G. This chick had a dropsical yolk sac which had burst and flooded the abdomen.

S. T. F. Pneumonia of the sporadic kind. See other reports in "Eggs."

G. L. The chicks had infectious pneumonia. There is no cure, but they can be fortified against it by giving 20 grains of citrate of iron and quinine per gallon of drinking water. Disinfect. Burn dead bodies.

H. B. The chicks were suffering from infectious disease (coccidiosis). The acid catechu treatment has given good results.

E. C. Infectious enteritis (coccidiosis). Two had not absorbed any yolk, and must have been inherited, as the lesions were advanced, although so young.

B. S. Pernicious anaemia, which is among the diseases fanciers lump up in the term "going light." It is caused by a parasite which preys upon the red cells of the blood, devouring their contents. Hence the wasting and bloodlessness of the tissues when examined after death. Experience of the malady leads one to expect a mortality of two or three per cent., sometimes rising as high as six or seven, but not when iron is freely given in the drinking water or in food. Fifty to sixty grains of the sulphate to the gallon of drinking water is a convenient form of medication. The disease dies out spontaneously after taking its toll.

P. This was a very unhealthy specimen, and bad feeding the cause. Flatulent distension had led to rupture of the bowel. The liver was a dirty slate colour throughout. You would find Mr. Newman's formulas more suitable. For some reason unknown fowls cannot profit by any considerable portion of potato in the ration, but become victims of flatulent indigestion like this one.

H. LEENEY.

INSPECTION AND REGISTRATION OF FARMS.

In reply to a letter from Mr. F. W. Wait, in reference to the above subject, which appeared in the columns of the "National Poultry Journal," the Editor remarks that the statements which appeared in the previous week's issue had not been questioned. We beg to refer him to the questionnaire in our issue to-day, and to add that those statements are very much questioned. As they are a serious misrepresentation of the true facts, much that was material was expressed, and the whole article conveyed a false and totally incorrect impression, calculated to cause prejudice, bias, and ill-feeling. Referring to the fact that the Ministry had stated they "could not contemplate inspecting two or three registers," this is interpreted as a refusal on the part of the Ministry to grant the same terms to other Societies as the S.P.B.A. But the Ministry had suggested that the N.U.P.S. should approach the S.P.B.A., with a view to a joint committee and a joint register, and a public invitation has been extended to other Societies to co-operate with the S.P.B.A. Apparently there is no desire to share with the S.P.B.A., only a desire to run a separate scheme, and the Ministry's suggestion our contemporary carefully refrains from mentioning.

One fact is never referred to, that is that no other Society had, or contemplated having, a register on the lines of the S.P.B.A.

The Editor refers to the fact that the negotations with the Ministry were confidential. Certainly they were, because the S.P.B.A. did not contemplate a National scheme. It went to the Ministry, as the only Society having a register of pedigree trap-nested stock with individual records, and the Ministry was assured by the *Chairman of the N.U.P.S.* and the Secretary of the National Poultry Council, that this was the case. Then the S.P.B.A., having a broader vision, and seeing that there were possibilities of the scheme being gradually evolved into a national one, invited other Societies to come in—we wonder whether any other Society would have done the same—and this is the result. We are accused of "seeking a monopoly," of "attempting to seduce members from other societies." The whole thing is too ridiculous. The S.P.B.A. has attained its present position by strictly minding its own business, attending to the interests of its members, and not worrying about the affairs of other Societies.

The Editor further denies that the quotations which he used, and which have caused "mistaken ideas" were "not snatched from the text for journalistic purposes," and further adds that "it is the written word which must be dealt with." We accept his statement as far as the word "journalistic" is concerned, but we say they were snatched from the text for *other* purposes, and the whole article was a serious misrepresentation of the facts. We most cordially agree with him, it is "the written word which must be dealt with." All we ask of him is that in future he will deal with the *whole* of the written word, and not the *half*, will not take sentences from their context, suppress facts, and publish the half of letters, and so present to his readers the case in such an aspect as will cause misunderstanding and ill-feeling, all of which might be avoided, had the true facts and the whole facts been published.

Our contemporary, "Poultry," pleads, as the reason for its Editorial last week, its earnest desire for the maintenance of peace and unity in the industry. That desire would have been more convincing had it published the Ministry's circular in full, and not omitted that part of it which was material. The letter from a correspondent is amusing, as illustrating how the individual may view the question as it personally affects him.

APPLICANTS FOR MEMBERSHIP.

Baker, Thos. E., 50, Bravington Road, Harrow Road, Paddington, W.9.
Butcher, John, The Bungalow, Colne Engaine, Earls Colne, Ex.
Baird, G. S., 1, Hurst Road, Erith, Kent.
Insall, C. D., Imber, Levington, Nr. Ashford, Kent.
Pulleine, Rev. R., Ripley Rectory, Harrogate.
Sykes, Eustace, Wellingore, Lincoln.
Reid, W. J., 53, King Street, Pollokshaws, Glasgow.
Colnett, Miss Avis, County Offices, Oxford.
Dainty, John G., Crabbes Farm, Little Horkesley, Colchester.
Robson, Miss A. M., Moorgarth, Caton, Lancaster.
Vessey, Mrs. E. M., Halton Manor, Spilsby, Lincs.
Woodward, S., Fairfield, Keyworth, Notts.
Ward, George, The Knoll, South Woodham, Essex.
Ratherham, Horace, Bungalow P.F., Tuxford, Notts.
Burrow, W. P., Manor Farm, Ebbesbourne, Salisbury.
Castle, S. T., Highcliffe, Gunnislake, Cornwall.
Innes, Mrs., Brean Cottage, Poultry Farm, W. Monkton, Taunton.
Helsdon, E. G., Greenhouse Poultry Farm, Rotherfield, Sussex.
Baker, Alex., The Cottage Poultry Farm, Tasburgh, Norfolk.
Bancroft, P., Coppers House Poultry Farm, Denholme Gate, Bradford.
Darby, I. C. L., "Pine Hill," Upper Bristol Road, Worle, Weston-Super-Mare.
Bowes, Miss G M., "Spencers," High Ongar, Essex.
Stone, F. Lawford, Woodcot, Mark Beech, Eden Bridge, Kent.
Rodwell, Mrs. H., The Old Hall, Old Buckenham, Attleborough, Norfolk.
Robertson, Miss M. S., Withington Rectory, Andover, R.S.O., Glos.
Coey, G. S., Ashfield, Dromore, Co. Down.
Broughall, A. J., Highfield, Dad's Lane, Kings Heath, Birmingham.
Whitnear, Mrs. E., 46, Liverpool St. Walney, Barrow-in-Furness.
Firth, Tom, 12, Heidelberg Road, Manningham, Bradford.
Green, H. D., Springfield Cottage, Toton, Notts.
Tushy, F. J., The Firs, Bran End, Stebbing, Essex.
Eccles, H. F., Tregorland, St. Just-in-Roseland, St. Mawes, Cornwall.
Cauwood, W., 21, Crossland Street, Swinton, Nr. Rotherham.
Vernon, Mrs. F., Holme Lodge, Sindenby, Thirsk.
Case, H. R., Poplar Road, Breaston, Derby.
Allen, Messrs., Stonefall Park P.F., Harrogate.

FISH MEAL.

Mr. George Palmer asks us to correct a mistake in reference to the price of Fish Meal in his letter which appeared in our issue of January 31st. The year given there should have been 1914 **not** 1924.
—Editor.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, FEBRUARY 8th, 1924.

GRAIN AND FEEDING STUFFS.—The demand for home-grown wheat remains active, and, with little improvement in supplies, prices have again advanced to the extent of about 4d. per cwt.; the average this week is 10s. 11d. per cwt., representing a total rise of 1s. 2d. per cwt. during the past month. Imported wheat is also dearer. Good samples of English malting barley are not easily found, and prices are very firm, while grinding descriptions are scarce and command fully recent prices. Oats meet a steady trade, with prices tending against buyers, and maize, which is in limited supply, is slightly dearer at all markets.

A good trade is passing in milling offals, and prices are inclined to advance; coarse middlings now average over £9 per ton, as compared with an average of less than £8 per ton a year ago. Meals also meet an active enquiry and are dearer. Linseed cakes are in quiet request, although prices have a firmer tendency, but a good seasonable demand is reported for cotton cakes, which are generally dearer.

MILLERS' OFFALS.—Bran (British): Bristol, £8 7s.; Hull, £7 17s.; Liverpool, £8; London, £7 17s. Broad Bran: Bristol, £9 15s.; Hull, £9 7s.; London, £8 15s. Fine Middlings (Imported): London, £10 2s. Coarse Middlings (British): Bristol, £9 2s.; Hull, £9 5s.; Liverpool, £8 15s.; London, £9 2s. Pollards (Imported): Bristol, £8 5s. Rice Bran: Bristol, £7 15s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £11 7s.; Hull, £11; London, £11 7s. Maize Meal: Bristol, £11 12s.; Hull, £11 8s.; Liverpool, £11; London, £11 5s. Maize Meal (S. African): Liverpool, £10 7s.; London, £10 5s. Maize Germ Meal: Bristol, £10 15s.; Hull, £10 10s.; London, £10 5s. Maize Gluten Feed: Bristol, £11; London, £9 5s.

EGGS AND DEAD POULTRY.

British eggs are more plentiful and easier to purchase, 1st quality averaging 24s. 9d. per 120 as compared with 27s. 6d. a week ago; imported eggs are in moderate supply, and most descriptions are cheaper, continental showing a decline of from 2s. to 3d. per 120. Dead poultry generally is in quiet demand and occasionally cheaper in London, where supplies are heavier than last week.

Week-end prices—Eggs (per 120): British, 25s., 23s.; Irish, 24s., 22s.; Danish, 27s., 25s.; Dutch, 27s., 25s.; American, 22s., 18s.; Egyptian, 13s., 12s.; Chinese, 18s., 14s.; Italian, 23s., 22s.

Dead Poultry (per lb.): Fowls—Surrey, 1s. 8d., 1s. 6d.; Irish, 1s. 6d., 1s. 2d.; Others, 1s. 7d., 1s. 3d. Ducks, 1s. 5d., 1s. 1d. Geese, 1s. 1d., 11d. Turkeys, 1s. 6d., 1s. 4d.

EGGS.

Per Doz.—Ashford: First, 2s. 4½d.; Second, 2s 3d. Birmingham: First, 2s. 9½d.; Second, 2s. 6d. Carlisle: First, 2s. 6d. Chelmsford: First, 2s. 7¼d.; Second, 2s. 4¼d. Denbigh: First, 2s. 1d.; Second, 2s. 0d. Derby: First, 2s. 9d. Dorchester: First, 2s. 0d. Exeter: First, 2s. 6d. Guildford: First, 2s. 4d.; Second, 2s. 8d. Hereford: First, 2s. 0d. Hull: First, 2s. 3d. Ipswich: First, 2s. 6d.; Second, 2s. 0d. King's Lynn: First, 2s. 4d.; Second, 2s. 2d. Lincoln: First, 2s. 6d. Llandilo: First, 2s. 6d.; Second, 2s. 3d. Newport (Mon.): First, 2s. 7d.; Second, 2s. 6d. Norwich: First, 2s. 5d.; Second, 2s. 3d. Oswestry: First, 2s. 3d.; Second, 2s. 2d. Penzance: First, 1s. 10d.; Second, 1s. 9d. Salisbury: First, 2s. 3½d.; Second, 2s. 3d. Shrewsbury: First, 2s. 6d.; Second, 2s. 3d. Skipton: First, 2s. 3d. Truro: First, 1s. 11d. York: First, 2s. 10d.; Second, 2s. 9d.

FOWLS.

Per lb.—Birmingham: First, 1s. 4d.; Second, 10d. Derby: First, *5s. 3d.; Second, *3s. 0d. Exeter: First, 1s. 6d. Hereford: First, 1s. 3d.; Second, 1s. 2d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 1s. 8d.; Second, 1s. 4d. Newport (Mon.): First, 1s. 5d.; Second, 1s. 2d. Shrewsbury: First, 1s. 4d.; Second, 1s. 2d. Skipton: First, 1s. 9d.; Second, 1s. 7d. Truro: First, 1s. 2d. York: First, *5s. 3d.; Second, *4s. 6d.

DUCKS.

Per lb.—Birmingham: First, 1s. 2d.; Second, 1s. 0d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 5d. Hereford: First, 1s. 3d.; Second, 1s. 2d. Llandilo: First, 1s. 8d.; Second, 1s. 4d. Newport (Mon.): First, 1s. 3d. Shrewsbury: First, 1s. 6d.; Second, 1s. 4d. Skipton: First, 1s. 4d.; Second, 1s. 2d. York: First, *6s. 0d.; Second, *5s. 3d.

* Per Head.

EG

Wednesday, February 20th, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

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Edited by TOM NEWMAN.
PRICE TWOPENCE.

Twelve Months Post Free 12/8
Six Months „ „ 6/4
Three Months „ „ 3/3

"Duke of Wellington,"
Son of Lady Knight, who laid 363 Eggs in 365 days, New Zealand Test, 1920/21. Imported 1922 by

R. H. Berney
(M.A. Cantab),
West Common,
Harpenden, Herts.

This Drake is the grandsire of the Pen now leading ALL Sections of Ducks in the National Test. A Pen of his daughters won the Bronze Medal in the Northern Test 1922-1923, and one daughter took the 3rd Prize for Ducks at the People's Palace, 1923.

Our Positions speak for themselves

THE WHITE HOUSE POULTRY FARM

NATIONAL.—Out of 507 Pens competing—
Our White Leghorns: 2nd.
" Black Leghorns: 13th.
" White Wyandottes: 19th.

NORTHERN.—Out of 200 Pens competing—
Our White Leghorns: 9th.
" White Wyandottes: 4th.
" Black Leghorns: 9th.
(One Bird Short).

EAST ANGLIAN.—Out of 62 Pens competing
Our Rhode Island Reds: 6th.
(One Bird Short).
" Light Sussex: 3rd.

Sittings from Sisters to Above: 21/-. Carriage Paid.
From other Pens: 15/10 and 12/6.
Chicks Double.
Terms: Cash with Order.

Right on Top!

The WHITE HOUSE Poultry Farm
ST. NEOTS, HUNTS.

WHAT YOU ARE LOOKING FOR

A LARGE BROWN WINTER EGG
HIGH FECUND STRAIN.

PROOF—I HAVE IT

MY PEN OF W. WYANDOTTES WON CHAMPIONSHIP AND GOLD MEDAL OVER ALL BREEDS (2,000 BIRDS) AT 1922 HARPER-ADAMS' TRIALS WITH THE BEST GRADE OF EGG OF ANY PEN THAT HAS EVER COMPETED IN THIS COUNTRY—i.e., 1,346 EGGS. ONLY 5 UNDER 2 ozs. AVERAGE WEIGHT 2.3 ozs.

AGAIN IN 1923 MY PEN AT HARPER-ADAMS' TRIALS WON SILVER MEDAL WITH A BETTER GRADE OF EGG THAN ANY PEN IN PUBLIC TEST IN 1923—i.e., 1,265, ONLY 11 UNDER 2 ozs. ALSO BEING AWARDED THE POULTRY CLUB MEDAL FOR BEST BREED CHARACTERISTICS (ONLY AWARD) IN THE SAME COMPETITION AND WITH SAME PEN.

AND AGAIN MY PEN 118 AT NATIONAL EGG TEST, HELD AT BENTLEY, 1923, WON SILVER MEDAL. 981 EGGS SCORE 981.

YET AGAIN MY PENS IN THIS YEAR'S HARPER-ADAMS' AND NATIONAL EGG TESTS HAVE NOT LAID A SINGLE 2nd GRADE EGG AND HOLDS HIGH POSITIONS.

FRED. H. COLLINS,
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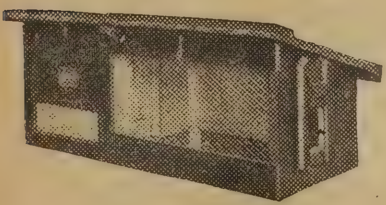

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This Brooder is thoroughly well made and finished. It is built for outdoor use in any weather, and costs nothing to run. We also make brooders to take larger quantities.

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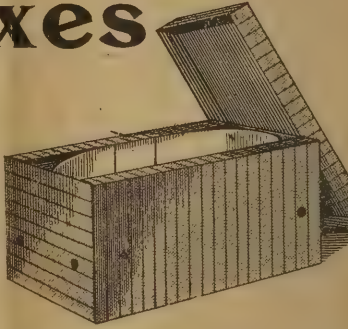
The new Planok Day-old Chick Box will be greatly appreciated by Poultry keepers.



These boxes are sent out IN THE FLAT, and require very little space for storage. When made up they are very rigid, and have been made sufficiently deep to give room for the hay nest.

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EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, February 20th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

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Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone : HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

BREEDS OF POULTRY (Continued).

BLACK WYANDOTTES.

Just before the Rhode Island Red made its appearance in this country, interest centred round the Black Wyandotte. Great things were predicted of it. The columns of the Poultry Press teemed with letters "booming" it both as a utility and exhibition fowl. Prophecies were made that it would oust the White from its premier position. It was spoken of as the fowl par excellence for the backyarder or the confined run. It was said to lay a larger egg than any other variety of Wyandotte. Classes at shows were well filled, the demand for the time was brisk, and the future of the breed seemed assured. Then the slump set in, and it has never been checked. What was the cause? Partly because of the superior claims of the Rhode Island Red, partly because it suffered from excessive booming. Neither its utility nor exhibition qualities reached that state which interested parties would have us believe. Now there appears to be a small revival, some nice specimens have been seen at shows of late. Many were the attempts made to "make" the breed. Black Rocks and Silver Wyandottes were largely used, and a great number of the early specimens were little better than rose-combed Black Rocks. Partridge and Silver Wyandottes were crossed and Gold and Silver Wyandottes, and in one instance at least an attempt was made with Black Leghorns and Silver Wyandottes. As a utility bird it was not a great success, eggs were small and not too numerous. From the exhibition point of view, the leg colour was the great difficulty, most of the pullets having dusky legs; if this was not the case they were light in under colour, and the true Wyandotte type was rare. The future of the breed does not appear very bright, and there seems small possibility of any real revival of interest.

SILKIES.

The Silkie is so small that by many people they are regarded as Bantams, but the Poultry Club has decided that they are not. They are quaint-looking birds. One can hardly call them handsome, although every true fancier believes his favourite breed is handsome. It was introduced into this country about forty-five years ago, and its fame lies chiefly in its plumage, from which it derives its name, and its very pronounced tendency to broodiness. It is only a moderately good layer of small cream-coloured eggs, averaging fourteen to the pound. As a table fowl it is not esteemed owing to its dark-coloured flesh. It can be kept with fair success in confinement, is fairly hardy, but a poor forager. The White is the best known variety, but there are also Blacks, and some Buffs have been exhibited, probably derived from the Buff Pekins. We have also heard of Partridge Silkies, but have not seen any. The comb is peculiar, it is described in the standard as "An almost circular cushion of purple-black flesh, with a number of prominences over it." The average size of cocks is only about 3 lbs., hens 2 lbs. It is curious that silkie plumage is not peculiar to this breed; some years ago we saw Croad Langshan mutants with this plumage, they were remarkably handsome.

INDIAN GAME.

Indian Game or Cornish Game as it is known in the States has always had a large following. There is some doubt as to their origin, but it would seem that they are the result of a cross made about 1846 by Sir W. R. Gilbert of a Red Aseel imported from India, with English Black-Breasted Red Game. Sumatra Game blood has also been infused. Devon or Cornwall would seem to have been its native home. It has a peculiarly morose and sullen aspect, has wonderful table properties, combining great size with abundance breast meat. As layers they are not particularly good. Crossed with the Dorking they produce a magnificent table fowl. It is said that they were used in making the Golden Wyandotte, and we have a suspicion that they are included in the make-up of the Barnevelder.

SICILIAN BUTTERCUPS.

The Buttercup has hardly realised expectations in this country. Perhaps its advent was too loudly heralded, there was too much talk of its wonderful laying propensities, too much of the 300-egg strain at the time when the 300-egg bird was regarded with as being the property of someone who "'ad wisions"; the reality did not prove the ideal, this caused disappointment, and the Buttercup has not made progress in popular favour. The name is derived partly from the fact that they originated in Sicily, and partly from the peculiarly shaped comb. It is a good layer of fair-sized creamy-white eggs, a good forager, fairly hardy, and a remarkably small eater. Although still plentiful in Sicily they have been badly neglected, and the majority of those in this country are the result of importations from the States. The plumage of the cock is a rich red, and the hen gold spangled with black. As winter layers they are not very great; the flesh is dark coloured, and they are not esteemed as table birds.

ANDALUSIANS.

If the Andalusians have never attained a high degree of popularity they have never wanted followers, and their admirers claim that those who have once taken up the breed are not easily persuaded to change it for another. It has excellent utility qualities, being a good layer of large white eggs, hardy, suitable alike for the backyard or free range. Perhaps the difficulty in breeding it possesses a fascination for some people, for, like all blue fowls, the Andalusian, which is the oldest of all, never breeds true to colour. "Sports," black and white, turn up with a frequency calculated to damp the ardour or spur the breeder to fresh efforts according to the temperament of the individual. A really good specimen of the Andalusian is a very handsome fowl, undoubtedly the handsomest of all blue fowls. It is rather slower to mature than the Leghorns. The weight of a fully-matured cock should be about 7 lbs., of a hen 5 lbs.

BLUE LEGHORNS.

It is fifteen years since the Blue Leghorn was first exhibited at the Dairy Show, and we well remember the sensation they created. Breeders were scouring the country to find "splashed" whites to mate with Blacks to produce Blues. We thought and talked of Blues for a time, and crowds collected round them at the shows, but the sensation was soon over, and they do not now attract the public. Like all Blue fowls, it seems beyond man's genius to fix the colour, and putting the scientific explanation on one side, when you think of it, the blue aimed at by breeders is but a dilute black, so that a little extra pigment or a little deficiency is all that is necessary to account for the Black and White Sports, and the mismarked birds. The Blue Leghorn is an excellent utility fowl, a good layer of large white eggs, and possessing all the good qualities of the Leghorn.

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

A VISIT TO THE NORTH.

On Wednesday, February 6th, I paid a visit to our Keighley Branch and lectured in the Temperance Hall on "Nutrition." There was a large attendance of members and others interested in poultry-keeping. The Branch is making excellent progress and doing good work in the district, thanks to a strong and enthusiastic committee, and an untiring Secretary in Mr. H. Calvert. Evidence of the keenness is to be found in the fact that, although it has only been in existence a few months, a Laying Test has already been started on Mrs. Wilson's farm at Denholme. This I visited in company with Mr. Frank Snowden, who was my good host during my stay. I should say that there is no test held under such severe conditions in this country, for Mrs. Wilson's farm is 1.000 feet above sea-level, and is very exposed. It redounds to her credit, that the birds should be in such perfect health and condition. It is bitterly cold on the top of those Yorkshire hills, and there is little shelter; the bird which lays well there can be counted on to do exceedingly well under more congenial conditions. In November the Branch contemplates holding its first show, and I am confident from what I saw that it will be a success.

While at Denholme we called to see Mr. Robinson, who had some first-class Padman White Leghorns to show us, all carefully trap-nested. The records were excellent, a goodly percentage of the birds having passed the 200 egg mark; they were nice bodied birds too, and their owner was justifiably proud of them.

Naturally I was keen to see Mr. Snowden's birds which have won such astonishing successes in the Laying Tests both here and in America during recent years. First I was shown the pen which took second place in the Missouri contest, and which actually laid more eggs than any other pen. The total for the five birds was 1,327 eggs, or an average of 262.2 per bird. The individual records were 274, 257, 264, 270, 254, and there were 8 floor eggs. Unfortunately for Mr. Snowden, one bird died, and the reserve was only credited with the 200 eggs laid at the time of this bird's death, although actually laying 54 more eggs. What pleased, and to some extent surprised, me was the size of these birds. I won't repeat what has so often been said before as to the lack of size in some of our heavy producing strains. Mr. Snowden realises that if he is to retain stamina and size of egg as well as numbers, he must not sacrifice these essential assets for exceptional records, therefore in selecting his breeders are not the only consideration or by any means the first. Of course, I saw the famous "Daily Mail" winners, surely no greater test of the breeder's skill and no greater tribute to his stock can be desired than the winning of such a severe test as this. The pugnacity of the male heading this pen amused me, this was a very striking feature of the male birds on the farm, and yet I hear of a famous handling judge, who "loves the tame and docile male." I must confess that I have never yet met an expert breeder that does not take the opposite view.

Mr. Snowden is now devoting some of his energy to Black Leghorns, and is already winning laurels in the Laying Tests with them. It is no secret that his Blacks are the result of a cross between the Black and the White; of course, they are a pure Leghorn, and typical specimens at that.

Raikes Hall, like all the poultry farms in the district, is very exposed, and rearing is by no means an easy task. Mr. Snowden has adopted the small unit system, and he is satisfied that it gives the best results. Well-built houses, each 6 x 4, with a hover inside, and an outside run, a fair number of vigorous healthy chicks were on view, but it is too early for the main hatches of these highly prolific strains. One thing he was emphatic about, and that was the quality of the foodstuffs. Here I saw some broad bran which delighted my heart, and thirds of the finest quality, and a sample of meat and bone meal such as rarely passes through my hands.

My pleasant visit came to an end on Friday, and I journeyed to Manchester here in company with Mr. Grove and Mr. Hammett. I went to hear the latter lecture on "Incubation and Rearing, Artificial and Natural." A goodly and appreciative audience listened very attentively to a first-class lecture, and afterwards plied the lecturer with questions which kept him busily employed for some time. Although I went as a listener only, I was called on to say a few words.

On the Saturday I went to Rochdale, where they have a very strong Society which is doing excellent work. There was a very large attendance of some very keen poultry-keepers, who had a hearty laugh at my expense, for, by a slip of the tongue, I said "going to church" instead of going to perch. However, I got out of it by saying I assumed they only kept good hens in Rochdale.

IMMUNITY.

I have on more than one occasion written of natural immunity to disease, and suggested the possibility of evolving a strain which would be immune to such diseases as Avian Diphtheria, B.W.D., etc. To my mind, this is the most practical way of fighting disease, for I have no faith in vaccines, serums or drugs. The question was forcibly brought to my mind by a letter shown me by Mr. Frank Snowden, from a customer whom he had supplied with stock. The customer in question had a bad outbreak of Avian Diphtheria on his farm, yet Mr. Snowden's birds did not contract, although in actual contact with the diseased birds. When I was in Brussels I met Professor Fratteur, of Louvain University, and had a most interesting chat with him on this subject. He told me that he had found a strain which was immune to Avian Diphtheria, although he had tried every means to infect them, even placing the virus in the mouth. There is, of course, some difficulty in keeping a strain immune, it would not do to make out-crosses with other strains, and the immunity might cease if by any means the vitality of the strain was lowered. It is interesting and important, and I hope some day the National Poultry Institute will be able to investigate.

EGGS FROM SOUTH AFRICA.

"On the 1st of December a trial shipment of 100 cases of eggs (each containing 30 dozen) was shipped from E. London by the R.M.S. 'Armadale Castle.'

The necessary inspection as required by the Government regulations was carried out at the premises of the Imperial Cold Storage and Supply Co., Ltd., by Mr. A. Owen John, under whose supervision the consignment was dispatched.

The object of this trial shipment is with a view to developing egg export through that port in the future. On arrival in London this consignment will be inspected and reported upon by the Union Trades Commissioner. If this report proves favourable, it is hoped that next export season, which commences in September, that E. London will be included in the egg export regulations as a recognised port of export."—(S. African Poultry Magazine.)

The most striking feature of the above is the trouble which is taken to inspect the eggs before export, so as to ensure that the market shall not be spoilt by inferior produce.

THE POROSITY OF THE SHELL.

The shell of the egg is porous, and so permits the intake of oxygen and the expulsion of the carbon dioxide by the developing embryo. Rizzio found that the pores were more numerous at the large end of the egg where the air space normally forms, and least numerous at the small end, while over the rest of the surface they were variable in their distribution and arranged in clumps or rows or simply scattered at random. It is suggested that the concentration of pores at the large end of the egg directly over the air space indicates that this air space probably forms as a mechanical response to porosity, and that evaporation of contents or excretion of waste gases is probably more rapid at this point than elsewhere. Eggs are, however, often found where the air space is at the side, or even at the small end, one can then only suppose that this is due to some abnormal condition of the shell. It is certain that the porosity of some shells is far greater than that of others, and there would be a proportionately greater rate of evaporation.

LIGHT v. HEAVY BREEDS.

We have on more than one occasion had some interesting discussions as to which are the most profitable, the light or the heavy breeds, and the question has been put me in the most direct manner recently by one who says he "wants to know." I must confess that it is not an easy question to answer, on the one side we have the earlier maturity, smaller consumption of food, and on the average the lights are the more prolific egg producers. American experiments indicated that the Ancona produced a greater number of eggs on a smaller consumption of food than any other breed, but this must not be taken as conclusive. The Bresse is also a small eater; indeed, on one occasion one of our members was so worried because his Black Bresse ate so little that, in spite of the fact that they were in perfect condition and laying well, and I had assured him that this was the case, and they consumed all they required, he gave them half a ginger and gentian pill each for several nights—as a consequence they ceased their contributions to the egg basket. Some breeds are more voracious eaters than others, the Minorca has that reputation and so has the Orloff, but it must be admitted that the heavy breeds consume more food per egg laid than do the lights. In favour of the heavy breeds we have greater winter production, although this statement must be qualified in view of the fact that many of our best strains of Leghorns produce eggs steadily in the winter; the cockerels can be sold at a profit for table purposes, and the hens when they have finished their laying career realise a bigger price as fat hens. One can only pit breed against breed and not answer the question generally. My own impression is, and it is only an impression, that such breeds as the Sussex, Rhode Island Red and Buff Rock are more profitable than the Light breeds, but I do not think this is the case with the Orpington, Wyandotte or Langshan. Our average utility strains of Wyandottes are too small, and the Orpingtons and Langshans too slow to mature. No doubt many of my readers will not agree, but I am speaking generally and not referring to individual strains, the breeders of which may be prepared to refute what I have said.

Modern Poultry Feeding.

By TOM NEWMAN.

ANIMAL PROTEIN (Continued).

BLOOD MEAL (Dried Blood) has a very high protein content, but is poor in calcium and phosphorous. It is not sufficiently appreciated by poultry-keepers, the high price being probably considered prohibitive. This may be thought to be compensated for by the high protein content, but we lack evidence that there is real advantage to be derived from this additional amount of protein, and it may be said with some degree of certainty that good samples of fish meal ,or meat and bone meal are more valuable to the poultry-keeper on account of their calcium content than blood meal with its much higher protein content. A mixture of miller's offals and blood has been sold, and perhaps it still sold, as blood meal; this would, of course, have a much lower value.

Analysis : Water, 9.7 ; Ash, 3.3 ; Protein, 82.3 ; Carbohydrates, 3.8 ; Fats, 0.9.

GREAVES is the membraneous matter which is mixed with animal fat; when the latter is melted down for tallow this is separated. The fat is first boiled down, and floating to the top is removed by skimming. The remaining fat is passed through a powerful press, leaving the membraneous matter in the form of a cake or block of a dark colour. Years ago Greaves were sold as such and were much used by poultry-keepers, now it occasionally comes to hand as a low-grade meat meal.

Analysis : Protein, 58.6 ; Fat, 25.5 ; Ash, 6.4.

MEAT MEAL varies considerably in quality. The best is the residue from the manufacture of meat extracts, but much of it is made from slaughter-house refuse and the carcases of animals unfit for human consumption, and a great deal comes from the American meat packing houses, the fresh meat scraps, fat trimmings and scrap bones being thoroughly cooked in steel tanks by steam under pressure, which separates the fat. A good sample from the manufacture of meat extract, such as Brand's essence, has the following analysis :—

Water, 10.8 ; Protein, 72.3 ; Crude Fat, 13.2 ; Ash, 3.8.

The low Ash content is due to absence of bone.

Carcase meal has a much lower protein content, the ash content being correspondingly higher owing to the presence of bone.

A good sample of meat and bone meal should have the following analysis, and is more valuable to the poultry-keeper because of the higher calcium content than pure meat meal.

Protein, 60.4 ; Ash, 15.3 ; Fibre, 5.3 ; Carbohydrates, 3.7 ; Fat, 7.4.

Carcase meal.—Analysis : Protein, 50.3 ; Fat, 17.0 ; Ash, 32.0 ; Fibre, 2.7 ; Carbohydrates, 1.0.

We have still to discover whether in a properly-balanced ration a meat meal with a protein content of 70 per cent. is of greater value than one with, say, 50 per cent. and a higher ash content; it is very probable that it is not, at least it is questionable as to whether it repays the additional cost. An experiment conducted on these lines would be of interest and value.

THE WELLINGHAM EXPERIMENTS.

Many of my readers who have been keenly interested in the Wellingham experiments have switched their birds on to mash C, which has given the best results, and have been disappointed to find that there has been an immediate drop in the egg yield. I must confess that I am somewhat surprised to find that several experienced breeders have written to me to this effect. Surely they should be aware that any drastic change in the feeding always results in a diminished egg yield for the time being, and that all changes should be gradual. I suggest that when introducing soya bean meal they should begin with 5 per cent. at the start, then increase to 10 and so on to 15 per cent. It should be remembered that mash "C" is not a model one, it is purely experimental, and, although the results have so far justified it, further experiments may suggest modifications. At present we have succeeded in proving that we can obtain excellent production on a ration that does not contain more than 2 per cent. animal protein in the four worst months of the year, and that the birds are in perfect health. It will be interesting to see what will happen at the end of the twelve months, whether Pen C will maintain its lead or not. I expect it to rather improve its position if nothing occurs to check it; but that remains to be seen. I really cannot answer questions as to the value of soya bean meal in chicken rearing until we have tested it. It is pure guesswork, there seems to be no reason why it should not prove of value. In an American experiment the results were anything but satisfactory, but that was the fault of the basal ration and not of the soya bean. I have been reminded that it is deficient in the lime salts; of that I am aware, but that is provided for. It is curious that those who tell me this will use pure meat meal as the source of animal protein, which is as deficient in lime as the soya bean. I must repeat that it is the extracted soya bean which should be used, so many letters arrive asking that question.

BALANCED RATIONS.

I have been asked to give examples of **Un**balanced Rations, and to show why they are unbalanced. We must assume in the examples given that the food is confined exclusively to the rations given, and that the birds have no green food, or any opportunity of supplying deficiencies and so balancing the ration.

Here is a sample mash:—2 lbs. bran, 4 middlings, 1 Sussex ground oats, 1 maize meal, 1 meat meal. Grain: maize, oats, wheat in equal parts, or maize, barley and dari in equal parts. Swedes or mangolds as green food. This is an unbalanced ration.

A balanced one should contain the protein carbohydrates, fats and mineral salts in their proper proportion. We don't exactly know what is the proper proportion, but that is beside the question now. The mash above is deficient in the lime salts. It is quite possible that it would produce a good number of eggs, but I doubt whether they would hatch well, or whether you would get rearable chicks, for the lime must be derived from the foodstuffs, and there would be none in the egg from which the skeleton of the chick could be built. The question is how to remedy this deficiency. That is not difficult. If we replace one part of the bran with alfalfa meal, and the meat meal with meat and bone meal or fish meal we shall have accomplished it, or we could do so by an adequate supply of fresh green food. Every constituent of the ration, as given, including the root vegetables, are deficient in lime. In other respects this ration was fairly well balanced.

To take another example: 2 lbs. bran, 2 clover, 5 sharps, 2 ground oats, 1 fish meal—grain as before. Here we have an excess of fibrous matter and a deficiency of fats. By reducing the clover and bran to one part, replacing one part of the ground oats with maize meal, we can remedy that.

Here is another given to a breeding pen, in a bare earth run, which did not produce many eggs and fewer hatchable ones: Ground oats 1 part, biscuit meal 2, middlings 3, pea meal ½ part, meat meal ¼—Grain: wheat two-thirds, oats one-third. There was a deficiency of animal protein here; had the meat been increased to a half-part that might have been met, but there was also a deficiency of the lime salts.

Here is another. The mash formula itself was not very wrong, but the proportion of grain and mash was too high, and consequently not enough protein was fed: 1 biscuit meal, 1 ground oats, 2 middlings, 1 clover, ½ fish meal; 1½ ozs. of mash per day, 2½ ozs. grain. When these quantities were reversed the results were much better.

The following contained an excess of protein, and resulted in shell-less eggs, broken eggs in the oviduct, double-yolked eggs, and pullets off their legs: 1 lb. bran, 4 middlings, 1 pea meal, 1 ground oats, 1 barley meal, 2 meat meal. The pea meal could have been omitted, and the meat reduced to 1 lb.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Breeding a Pen of Pullets to Compete in a Laying Test.

By L. G. PRICE.

It has often been brought to my notice the number of poultry-keepers who purchase one or two sittings of eggs from some noted breeder, or big advertiser, with the object in view of winning a Laying Test. Obviously, many of these people are bitterly disappointed with the results obtained. Therefore I submit to you a method whereby one would have a better opportunity of breeding a pen, and have a reasonable chance of doing them justice.

In my opinion, one should commence with a reliable strain of the breed he (or she) intends to compete with. The pullets reared from such should be trap-nested, weight of eggs, numbers. also the winter months' records carefully kept and studied. After this has been carried out cast out pullets which moult after laying a few eggs, however short the period may be, also any showing the least sign of weakness or illness, and those that are very small for the breed, and at the end of these pullets' trap year choose those with the highest record that is consistent with the size of eggs and winter records. Mate them to a cockerel, breed from a tested dam and sire, not only tested for numbers but as above, also the longer the pedigree is on those lines the better. Now, having collected the eggs from this mating, keep a record of the date each of these hens lay; the number of eggs placed in incubator from each; the date of hatching; percentage of hatching. Toe-punch the chicks, No. 1 hens being all marked alike, and so on. Keep the rearing results.

Now trap-nest those individual pullets, and at the end of their trapping year go carefully into all data. Separate each hen's pullets—i.e., records, etc.—then separate them up again according to the numbers and dates of hatching. Work out the individual average of each hen's pullets, then the average according to the hatching dates of all hen's pullets. Let the factors previously mentioned (i.e., size of egg) be a guide. Having carried this out you can now form an opinion as to which of these pullets' dams breed the best pullets. Select these and mate them with the original sire.

Now make up your mind which Laying Test you hope to compete in. Study the date the pullets have to be sent, also commencing date and scoring system. Find out from date how long it takes pullets from these dams to mature and commence laying. If six months on average—seven months and three weeks before the start of the Test—commence saving the eggs; after doing this for a month one would have quite a good number. Hatch them out all in one batch. Do all you know to build up the bodies of this hatch, particularly during the first month and up to four months of age. At this time go carefully through them, firstly by observation, then by the handling system. Now choose those which have matured the quickest—say 10 out of 25. Place these in a pen. Do not coddle them; feed on the foods which are going to be used at the Test competing in (of course less animal food); keep them tame. Remove any bird which you notice does not feed well, or either that the other birds take a dislike to—they show this by pecking or driving from the food. Handle them frequently, at least three times per week. Feed according to their maturity as regards commencing to lay, but do not stop their growth. Try to feed so that they will lay the first week they are at the Test.

Another method, not so good, but which can be carried out much more quickly, is to hatch out, say, 200 on a certain date; choose the earliest-matured birds from this batch, then select the best handlers and send these.

This table is an illustration of the above:—

Purchase, say, 240 eggs.
Obtain from these 60 pullets.
Trap-nest the 60 pullets.
From these select 10 hens.
Purchase one reliable cockerel or tested cock.
Mate him with the ten hens.
From the ten hens breed 60 pullets.
Now take the 5 best breeding hens of the original ten.
Mate the original cockerel with these 5 hens.
Save 10 eggs from these 5 hens.
Rear 25 pullets.
Select 10 earliest matured.
From these 10 select the 5 or 6 for the Laying Competition.

BRIGHTON AND DISTRICT UTILITY POULTRY SOCIETY.

By kind invitation of Miss Malcolm, the Society will visit Wellingham House on Saturday, 16th February. At 3 o'clock Miss Malcolm will explain the S.P.B.A. feeding experiments, and show the members the experimental pens. A Southdown 'bus leaves the Aquarium for Ringmer at 1.20, and one leaves for Lewes at 2 o'clock.

On Saturday, 1st March, the Society will inspect the Stock Test. Mr. Dowden expects members at Heydown Farm, Heathfield, about 3 p.m.

The executive committee is arranging for another Stock Test for 1924-5 on lines somewhat similar to those of last year.

Dr. Lewis Rosedale requires a number of day-old chicks for his experiments. Members are asked to offer him lots of about two dozen when convenient. They should write for instructions to Dr. Rosedale at The Hermitage, Wadhurst, Sussex, before sending birds.

H. M. TIMPANY,
Hon. Secretary.
Keymer, Hassocks.

ANNUAL MEETING OF BARROW SOCIETY.

SHRINKAGE IN MEMBERSHIP.

The annual general meeting of the Barrow and District Utility Poultry Society was held in the library of the Barrow Conservative Club, on Saturday afternoon, when a fair number of members attended. The Treasurer's report and balance-sheet was accepted.

The Secretary then gave his sixth annual report for 1923, which was accepted. This stated that the year ending December 31st, 1923, had on the whole been a quiet one. The depression of trade in the district had its effect on the society. Several members had given up poultry-keeping, while others had gone abroad to obtain work. Poultry-keepers were very hardly hit, as the prices obtained for their produce reached a very low level in the past year, while the price of feeding stuff had been high, with a tendency to rise instead of getting lower. He hoped that 1924 would show better returns. It was regrettable that so few members attended the meetings. If they did so, the committee would be in a better position to know their requirements, and very useful discussions might be initiated. Besides they would hear the reports of delegates to the Lancashire Federation and also the reports of the National Poultry Council. The delegates had taken a very active part in the work of the Federation, and the Federation in the National Poultry Council.

LEGAL DEFENCE FUND.

The outstanding feature of the year was the holding of the National Poultry Parliament at Blackpool, at which they were represented by Mr. T. B. Grice. One of the things done was to set up a legal defence fund to protect poultry-keepers against excessive rating and income-tax charges.

The National Poultry Council had, by raising £6,500, secured a grant of £50,000 from the Board of Agriculture and Fisheries to provide a National Poultry Institute and Experimental Station at Harper-Adams' College, Newport, Salop, and a breeding station for experiments in connection with egg production in conjunction with the Cheshire County Council.

The report dealt with other advantages which had been obtained through the combination of poultry-keepers in the National Poultry Council, and urged that it was of the greatest importance that all poultry-keepers should join their local societies. The National Poultry Council also had in hand the marking of foreign eggs. Twice this measure had been thrown back through the dissolution of Parliament—viz., in 1922 and 1923.

ELECTION OF OFFICERS.

Mr. F. W. Happold, the retiring president, resigned, and the officers elected were:—President, Mr. W. C. Fearn; vice-presidents, Messrs. F. Barker (Haverthwaite), Miles Newton (Newland), Robt. Atkinson (Kirkby), James Atkinson (Dalton), T. B. Grice (Silecroft), Geo. Waite and G. B. Tootall (Barrow); hon. treasurer, Mr. Marsh; hon. auditors, Mr. W. C. Boyes and Mr. J. J. Hardy; secretary, Mr. J. Graham; committee: Messrs. Brooks, Trippear, Bennett, Davies, and Morris.

BREEDING EXHIBITS AT THE WORLD'S POULTRY CONGRESS, BARCELONA.

FIFTY-EIGHT VARIETIES TENDERED FOR.

The British Committee for this event report that up to February 11th they had received tenders for fifty-eight varieties of poultry. This does not exhaust the list of what they would wish to have on view, and they appeal to breeders of the varieties mentioned below to see that these are represented at Barcelona. Only thus can the large cosmopolitan gathering at the Congress realise the scope and variety of British poultry, and our breeders ensure that custom which might have come to this country does not by neglect of a great opportunity to pass to other lands. The varieties needed to make up a practically complete exhibition of British breeds are as follows :—

Leghorns : Exhibition, White, Buff, Blue Pile and Duckwing. Cochins : All except Partridge. Scots Greys : Surely Scotland will not let her national breed go unrepresented! Light and Dark Brahmas : Where are the breeders of these grand Asiatics, which would be the wonder of the show? Orpingtons : Exhibition pens of Whites and Blacks are needed. Rocks : A pen of Barred will surely be forthcoming. Dorkings : A breeder of Darks is wanted to help our most typical British breed. French Breeds : Houdans have been tendered for, but Faverolles, Crêves, La Bresse are surely not going to lack a champion. Hamburghs, in all varieties, need representatives. In exhibition Wyandottes, White, Gold, Silver and Partridge need tenders. Rhode Island Reds want a rosecomb exhibit to show their quality. In Modern Game Brown-reds and Piles and in Old English Game Black-reds should surely find backers. Remember, the Spaniards love a game cock, and for this reason Aseel should not lack a sponsor, and also both Indian Game and Jubilee Indian Game. To keep their end up against their Croad brethren Langshans of the club type should make an entry, or judgment will go by default. Buttercups : The Golds have no entry as yet, and Orloffs, Polish and Sumatras, are alike in this respect. A pen of giant Malays would win admiration, and, we think, custom, and so would the quaint Frizzles if their breeders will but respond to this appeal. Andalusians and Minorcas will surely have breeders plucky enough to show that they still exist, and in Ducks, if a breeder of Black East Indians will but tender, waterfowl other than Geese, which are totally unrepresented, should make a good display.

Bantams need representatives for Sebrights, Rosecombs, Old English Game, Pekins and Polish to show the world how we can breed midgets.

Will readers of this paper, then, give their serious consideration to the question of tendering for the privilege of being the sole exhibitor of the varieties mentioned above, and write to the Hon. Sec., Congress Committee, 3, Vincent Square, Westminster, S.W.1, as early as possible, before the Committee meets on February 25th to allot the pens to the successful tenders?

Remember, it is up to British breeders, not only to do good business for themselves but patriotically to show the delegates from all over the world who will attend the exhibition in Barcelona that Great Britain still leads as the premier live-stock centre of the globe.

DERBYSHIRE LAYING TEST, 1923-4.

Four Months' Laying Test organised by the Derby Branch of the National Utility Poultry Society, and conducted on the Utility Poultry Farm of Mr. J. Thornhill, Great Longstone, Derbyshire :

JANUARY.

SECTION 1.—SMALL POULTRY-KEEPERS

No.	Owner and Breed.	Total First Grade to date.
1.	J. Groves (W. Leghorn)	7
2.	J. Groves (W. Leghorn)	—
3.	T. B. Kirk (W. Leghorn)	9
4.	S. Lees (Ancona)	12
5.	W. Sharman (W. Leghorn)	—
6.	L. L. Evans (W. Wyandotte)	10
7.	F. Goodall (W. Wyandotte)	23
8.	H. J. Morris (R.I.R.)	—

SECTION 2.—BREEDER MEMBERS (Light Breeds).

No.	Owner and Breed.	Total First Grade to date.
11.	J. K. Peach (W. Leghorn)	1
12.	T. S. Collyer (W. Leghorn)	20
13.	C. Gresley (W. Leghorn)	11
15.	Messrs. Brown and Dakin (W. Leghorn) ...	17
16.	Mrs. E. Pass (W. Leghorn)	1
17.	S. Hufton (W. Leghorn)	11
18.	Mrs. E. Pass (W. Leghorn)	1
19.	W. G. Wall (W. Leghorn)	2
20.	W. G. Wall (W. Leghorn)	—
22.	Alvaston Poultry Farm (Ancona)	27
23.	Mrs. Hicks (W. Leghorn)	13

SECTION 2.—BREEDER MEMBERS (Heavy Breeds).

No.	Owner and Breed.	Total First Grade to date.
26.	W. Hinds (W. Wyandotte)	—
27.	M. Moreton (R.I.R.)	58
28.	M. Moreton (R.I.R.)	4
29.	J. K. Peach (R.I.R.)	13
30.	T. S. Collyer (R.I.R.)	56
31.	G. Smedley (R.I.R.)	36
32.	Mrs. E. Pass (Buff Orpington)	31
33.	Mrs. E. Pass (R.I.R.)	22
34.	W. G. Wall (W. Wyandotte)	—
35.	W. G. Wall (W. Wyandotte)	19
37.	Alvaston Poultry Farm (W. Wyandotte) ...	38

SECTION 3.—OPEN (Light Breeds).

No.	Owner and Breed.	Total First Grade to date.
41.	Misses Ransford (W. Leghorn)	25
42.	Misses Ransford (W. Leghorn)	22
43.	S. Watts (W. Leghorn)	1
44.	J. Parkes (W. Leghorn)	12
45.	J. K. Peach (W. Leghorn)	4
46.	J. Godfrey (B. Leghorn)	48
48.	Messrs. Brown and Dakin (W. Leghorn) ...	30
49.	A. V. G. Ermen (B. Leghorn)	7
50.	H. Kemp (B. Leghorn)	19

SECTION 3.—OPEN (Heavy Breeds).

No.	Owner and Breed.	Total First Grade to date.
51.	F. A. Merridew (W. Wyandottes)	18
52.	F. Deakin (W. Wyandotte)	9
53.	F. Deakin (W. Wyandotte)	8
54.	R. W. Williams (Light Sussex)	25
55.	G. W. Adcock (W. Wyandotte)	2
56.	J. K. Peach (R.I.R.)	56
57.	J. K. Peach (R.I.R.)	53
58.	T. O. Davies (W. Wyandottes)	—
59.	T. O. Davies (Buff Orpington)	—
60.	T. O. Davies (Buff Orpington)	8
61.	T. O. Davies (Buff Orpington)	—
62.	A. Beckett (W. Wyandotte)	—
63.	V. Gill (W. Wyandotte)	1
64.	G. A. Lomas (R.I.R.)	26
65.	Miss C. Parrish (Barnevelder)	6
66.	G. Smedley (W. Wyandotte)	18
67.	G. Smedley (W. Wyandotte)	9
68.	F. Hunting (Buff Orpington)	—
69.	Do. Do.	1
70.	Do. Do.	—
71.	Do. Do.	8
72.	Do. (W. Wyandotte)	4
73.	Do. Do.	—
74.	Do. Do.	7
75.	Do. Do.	—
76.	J. Millwain Do.	—

Unrecorded eggs 11.

Three-quarters of the Test is now passed. Most of the birds have kept up a steady production. No cases of sickness or isolation. Two birds have been broody.

The weather has been better, with milder days, but strong winds are against egg production. All awards again go to fresh birds.

Correspondence.

BROODER STOVE CORROSION.

To the Editor of "Eggs."

Sir,—I am rather interested in the letter appearing over the signature of S. C. Atkins, and he might be interested to know that I have a British-made anthracite stove which I have had for fifteen years. I have replaced the fire bars once, and beyond that no part of the stove shows signs of decay. I am convinced it is going to last for another fifteen years.

If the writer of the letter has a British-made anthracite brooder stove which has shown signs of corrosion after brief use, then there is something radically wrong with the conditions under which he is working it.

It would be interesting to know what kind of fuel he is using, and what is the analysis of that fuel; he probably knows that fuel analysis varies very considerably.

I have seen French-made anthracite stoves corrode very quickly.

Personally, I hardly think that the metal used by French makers differs from the metal used by British makers.

Has your writer a cap on the top of his chimney to prevent rain running down the chimney into the stove? All cast-iron decays if exposed to dampness, that is why landlords stipulate that their property should be repainted periodically by the tenant.

I am wondering if Mr. Atkins has ever heard of an oil stove that lasts from one winter to the next if it is exposed to dampness. Common sense should tell one to keep unpainted metal in a dry place.

Yours faithfully,

GEO. L. OGILVIE.

MR. HANSON'S SCHEME.

To the Editor of "Eggs."

Dear Sir,—My wife, being an enthusiastic member of the S.P.B.A., and therefore a regular student of "Eggs," I occasionally peruse your very ably edited paper. In your issue of February 6th I notice Mr. Hanson's proposed co-operative scheme for poultry producers.

I write to give the promoters and your readers generally a word of warning, because in my experience as a general farmer who has willingly supported, in a small way, several co-operative ventures that have failed of their object—to make a profit for the members. In two instances I have lost the whole of my money. I mention this experience, not with any intention to crab Mr. Hanson's scheme—far from it—but to draw attention to "collective selling" as the policy that is now being adopted by the National Farmers' Union, as being more likely to succeed than co-operative companies and also involving far less monetary risk.

To illustrate, the National Farmers' Union initiated the "collective selling" of milk in the autumn of 1922. Contracts with the milk buyers were for a year, and with certain revisions of detail and natural variations in prices, contracts were made last autumn for another year. Having functioned for two years the National Farmers' Union will not easily leave go, and, indeed, the system is not likely to be discarded by the milk buyers. On the other hand, all the prospects point to expansion of "collective selling" to meet and other farm produce. Hops, under control, are really sold collectively, and hop-growers will not return to free and unrestricted barter if they can possibly avoid it.

The great virtues of "collective selling" are:—

(1) That it operates in a far more comprehensive and far-reaching way than limited companies can ever hope to.

(2) That, if done through a powerful organisation, there is practically no necessity to risk the money of members, as the existing organisation can carry out the work, and in the case of milk the work is effected much more skilfully and speedily than a private company could do it since the National Farmers' Union has a headquarters personel of extraordinary gifts.

I am perfectly sure that the N.F.U. will discard entirely the idea of co-operative companies and supply itself solely to "collective selling." I understand that the poultry producers as represented by your own and other Societies (concentrated in one central body for preference) are getting linked up with the N.F.U. with a view to forming a section with doubtless its own representatives on the Central Council of the N.F.U. In this way you strengthen yourselves and the general farmers in every way—economically, educationally and politically—and the association will quickly reveal the sign-post—though perhaps still a little distant—"To Collective Selling."

Such a method necessitates organisation on the part of the buyers, as the poultry producers would require to meet representatives of the wholesalers and retailers, but the experience of the general farmers is that milk, meat and fruit buyers are highly organised—so much so that hitherto the isolated farmer has been no match for them.

By identity with the N.F.U. poultry producers are in a much more effective position as regards transport charges, facilities, etc., and here it is of interest that the N.F.U. has just appointed a permanent railway rates official.

CHAS. T. BURGESS,

Chairman, Ashford (Kent) Branch, N.F.U.

MR. HANSON'S SCHEME.

To the Editor of "Eggs."

Dear Sir,—In last week's issue of your paper you were good enough to insert particulars of the scheme proposed by myself for the collective marketing—and fattening, where possible—of the surplus cockerels, old hens, and other produce, such as ducks, etc., of the commercial egg farmer, whether he be a large or small producer. The prices obtained throughout past seasons for such produce have been ridiculously inadequate, and in consequence it is imperative that an alternative method of marketing should be tried.

I am convinced that the object one has in view can, and will, be achieved by a national effort such as is proposed.

I would therefore urge all poultry-keepers to fill up the form attached to the particulars in your previous issue, or, if this be mislaid, to write at once to Mr. Edmund Scholes, Campden, Glos., from whom full details of the scheme may be obtained.

Yours faithfully,

S. G. HANSON.

The Old Down, Basingstoke.
8th February, 1924.

INCUBATION.

To the Editor of "Eggs."

Dear Sir,—Miss M. Berkley's letter in this week's issue of "Eggs" interested me as her experience with a damp piece of cloth in the incubator drawer is similar to my own. I have done this for the last two seasons, and have found a marked improvement in the number of chicks to hatch out. I dip my piece of woollen material into very hot water, wring it out until it is only nicely moist, and lay it over the eggs as soon as I see the first one has chipped. This I renew, as Miss Berkley does, night and morning.

There always seems to be several eggs with extra tough skins for the chicks to peck through, and before adopting the use of the damp cloth I lost a more or less heavy number of chicks from their inability to escape from the shell. With the use of the wet cloth I now get an average 75 per cent. to 80 per cent. of the eggs to hatch.

Your excellent paper has been of much help to me in many ways, and I look forward to its arrival by post each week.

Yours faithfully,
W. E. GRANT QUANTRILL.

P.S.—I use "Hearson" machines and have found them excellent hatchers, but the use of the cloth considerably improves the results.

It is necessary to raise the flame—gas in my case—a bit to counteract the drop in the drawer temperature after putting in the wet woollen cloth.

ROSECOMB BLACK LEGHORNS.

To the Editor of "Eggs."

Dear Sir,—As I see that you are pleased to receive contributions, I am writing about Rosecomb Black Leghorns. I have kept them now for twenty years, and given up several other breeds in favour of them, as I found that White Wyandottes and Orpingtons (of which I kept good strains) laid such small eggs. I find that the Rosecomb Black Leghorn lays a good-sized egg (2oz. and over), and they lay a large proportion of them in the winter months. Eggs round here have been very scarce this winter, but my pullets have been laying all the winter, and are still doing so. We cannot help our variable climate, and I am sure that, as a rule, a rosecomb is less susceptible to sudden adverse climatic changes than a single comb, especially in those breeds where the latter is of large size. This is obviously the reason why the Rosecomb Minorcas and Black Leghorns are rapidly becoming such favourites with egg producers. The Rosecomb cocks do not require dubbing for stock purpose, as the large single combs do. The chicks are hardy and easy to rear, and the cockerels are not to be despised for table birds. The Rosecomb Black Leghorn combines utility with exhibition qualities, and they are very little trouble to prepare for show and soon become tame when handled. They are a handsome type of fowl, with their bright red combs, beetle green plumage and yellow legs. They have been well called "The rich man's pride" and the "Poor man's egg producer."

Yours truly,
MISS BARKERMILL.

EGG-LAYING.

BARROW-IN-FURNESS SOCIETY'S COMPETITION.

This test, which is being conducted by M. G. B. Tootall, Thorncliffe Poultry Farm, Barrow-in-Furness, has now completed its fourth period of four weeks. The object of the test is to encourage breeding of high fecund stock that will lay first-grade eggs. That this is being accomplished is shown by the following particulars supplied by Mr. Tootall: First-grade eggs, 433; second-grade, 90; unrecorded, 7; total for month, 530.

Two birds, Nos. 40 and 42, have not yet laid an egg, both R.I.R. The feeding is unaltered from last month, and all the birds are in good health.

FOURTH PERIOD OF FOUR WEEKS.

Section 1.	1st.	2nd.	Eggs.	Points.
J. Tyldesley (W.W)	22	0	22	220
Miss M. Newton (W.W.)	18	2	20	196
W. Satterthwaite (W.W.)	16	3	19	184
Section 2.				
J. J. Fisher (W.L.)	22	1	23	228
T. B. Grice (W.L.)	9	10	19	170
Miss M. Newman (W.L.)	12	4	16	152
Section 3.				
T. B. Grice (R.I.R.)	21	0	21	210
Robt. Atkinson (R.I.R.)	19	2	21	206
T. B. Grice (Light Sussex)	16	0	16	160
Section 4.				
Wm. Atkinson (O.E. Pheas.)	19	0	19	190
Hon. M. Cross (Ancona)	17	0	17	170
E. Baldwin (Ancona)	13	2	15	146

EGG RESULTS FOR FOUR MONTHS.

Section 1.	
T. B. Grice (W.W.)	738
J. Tyldesley (W.W.)	698
Miss M. Newton (W.W.)	614
Section 2.	
T. B. Grice (W.L.)	585
Miss Mary Newton (W.L.)	466
J. J. Fisher (W.L.)	350
Section 3.	
Hon. M. Cross (Buff Orpington)	758
T. B. Grice (R.I.R.)	518
W. C. Fearn (R.I.R.)	518
Section 4.	
Hon. M. Cross (Ancona)	440
A. Fawcett (Ancona)	328
P. W. Davies (Ancona)	326

Eggs 2oz. or over count 10 points; over 1½oz. and under 2oz. 8 points; under 1½oz. do not score.

J. GRAHAM, Secretary,
10, Romney Road, Barrow-in-Furness.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package. and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

H. E. (Sheerness). The breeds most suitable for such conditions as you describe would be the Buff Rock and the Black Leghorn. I do not think that on heavy clay and an exposed position you could beat these. Of course, the intensive system makes a difference, as they will get some sort of protection. The R.I. Red would also answer, and the Ancona.

A. S. (Killearn). The sample of bran is very good indeed. I am pleased to see that some of my readers are now beginning to know what is really meant by **broad** bran. The ground oats are only just fair, and do not appear to have been ground from a good sample of oats (that is, number 1 at 16s.); No. 2 at 15s. are rather better, but are not "Sussex" ground. The bone grit is a nice, clean sample, and the meat and bone meal of good average quality. The meat meal is just fair.

"Links" (Fife). The samples you send are all quite good, and you must not look to these for the cause of your birds laying badly. The alfalfa meal is rather stalky and is certainly not worth 18s. per cwt., and as your birds have a run on grass land it is unnecessary to use it. I cannot think that the poor results are due to the feeding. You have 75 hens and the same number of pullets, and the question is what proportion of these are laying and what is their bodily condition? I suggest that you try the following dry mash:—2 lbs. bran, 4 middlings (or thirds), 1 each ground oats and maize meal, ½ dried yeast and ½ fish meal; and, in addition, give them as the grain, as the last feed, 1½ ozs. of 2 parts kibbled maize, 1 wheat, and 1 oats, but I think you should really examine your birds and see their bodily condition, as that is the most important thing when birds are not laying.

J. W. S. (Lockerbie). I think the cause of the trouble is that you are struggling with a hopeless incubator. The reputation of the maker is not of the best, and you may have heard the story of the "rustic" who went to the fair and bought razors at 4d. each. Much to his disgust he could not shave with them, and finding the vendor made a bitter complaint. The only consolation he got was that the razors were made for sale and not to shave with. It is not a bit of good my advising you about such a machine. You seem to have done all that is possible, and it is hopeless. I think you ran it rather too high with 103 and the bulb of the thermometer on the top of the egg. The best advice I can give you is to scrap it and not waste your time with it. I differ entirely with your landlady and yourself. I think the fault does lie with the machine. It is not always a matter of temperature. A flock will give excellent fertility and hatchability and strong and vigorous chicks in spite of the fact that no new blood has been introduced for many years. In the summer when birds are on free range they do not require any meat meal or animal food.

"Doubtful" (Ore). I do not think the alfalfa meal can be the cause of the birds refusing the mash, as fowls eat a mash readily with the alfalfa meal in it. Chicks should not be allowed to remain in the nursery drawer. The nursery drawer in the machine you describe was not superfluous. It was a means of removing the chicks from the machine without opening it, and thus affecting the other eggs. One felt should be removed on the 19th day and the other should remain throughout the hatch. You should fill the narrow water trays from the first day, especially as you are using gas.

E. H. K. (Redbridge). The mash formula you require is:—2 lbs. bran, 4 middlings, 1 each Sussex ground oats and maize meal, ½ dried yeast. and ½ fish meal or meat and bone meal. I would prefer meat and bone meal to pure meat meal. Cracked maize would be a suitable grain to feed with it.

F. H. (Ponteland, Northumberland). Your mash is too fattening. Equal parts of the meals by weight you mention will not answer. Make it, by weight, of 2 of bran, 4 middlings, 1 each Sussex ground oats, and maize meal, and 1 fish meal. I am not at all surprised that your Buff Orpingtons, fed as you have been doing, are not laying. To get them into condition give them a scratch feed as the first feed in the morning, in deep litter. Do not open the mash hoppers until 11 o'clock. They must have plenty of scratching exercise to get the fat down. The mixing I have given you is quite suitable, and a mash compounded from the same in the proper proportion should give quite satisfactory results. Your mistake has been that you have been feeding too generously. Of course, you will appreciate it is necessary that the quality of the offals, middlings and bran should be of the best.

C. E. J. (Maidstone). I would not advise you to make the change from wet to dry mash at present. Better start by rearing your chicks on it. The general method of effecting a gradual change is to have the dry mash hoppers always before the birds, but reduce the amount of wet mash daily until the birds have become thoroughly accustomed to the dry. Please see reply to E. H. K. (Redbridge).

D. U. X. (Wandsworth). If you were to feed the hen one good feed at night that would entirely obviate the chicks eating the whole grain, especially if you had fed them first. You could keep them on dry mash, but if you find this is difficult then the best plan would be to feed wet mash to the chicks. It will not matter if the hen has access to the dry mash. Clinker will not be injurious to your fowls. Buff Orpington ducks are not so likely to range so far as Runners, but if they get as far as your neighbours' fields it may be just as difficult to get them back. The best thing to do is to feed them at regular hours. I think you are possibly using too much barley meal. It would be advisable to replace this with ground oats.

L. J. (Newtown, Montgomery). I cannot tell you where you can get "broodies" to hatch your eggs this spring. You will generally find them advertised, and it will be better if you can get them in the neighbourhood rather than sending from away. Silkies are the best sitters, but, of course, they are rather small. I cannot tell you through these columns where you can get ducks at the most reasonable price. I do not know that ducks lay better than hens on the average. Probably Khaki-Campbells would suit you better than any other variety. You could not keep many in your backyard of 30 square yards. In fact, I would not advise you to keep them in the backyard at all. Thirty ducks would not spoil the field. There is not much to choose between the Khaki-Campbell and White Runner as layers, probably the former have a little the best of it. I do not know the address of the gentleman to whom you refer. You should write to the Secretary of the Utility Duck Club, Mr. H. B. Carrington, who will give you the information you require.

Amateur (Leamington). I am very glad to hear that your fowls are doing so much better. The records for January of the White Leghorns, particularly pen two, are very satisfactory, but the Wyandottes appear a little slow; that would probably be due to the birds themselves and not to the feeding or management. With regard to the breeding question, and the culling of your hens, why do you not send for our Handling and Observation Charts? I cannot tell you anything more than I have said there, and, of course, your culling must to some extent be done by the records. Hens when not in lay do not require different feeding from those which are laying. As a rule they will eat less, and the great thing is to see that they do not become over-fat. For moulting you could add 4 per cent. linseed meal to the usual formula and give them kibbled maize as the grain feed, but all this is a matter of observation, and I must impress upon you that there are no hard and fast rules. Such foods as I have indicated will give you food results, but you must observe the bodily condition of the birds. When you do not want broody birds this is a matter of quantity rather than the kind of food they receive. Put them in a broody coop and do not over-feed them, but also be careful not to get them into under-condition, as that will prevent their coming into lay in good time.

A. R. G. (Belfast). I would not use gluten in the mash for chicks. So far as I can tell the sample seems a perfectly good one, but, as I have said before, I definitely advise our readers not to use gluten feed on any account.

E. H. D. (Bridlington). We hope to publish Mr. Capper's book shortly. I am not quite sure when it will be ready, but directly it is we shall make the announcement in "Eggs."

"Tyro" (Quarmby). The sample of bran you send is only just fair. It is hardly good enough to use. The yeast is quite a good sample, as is the linseed meal. The thirds are fair, and the ground oats are quite good, as also is the maize meal. The alfalfa is poor stuff, containing a very high percentage of stalk. The fish meal is a good average sample. I should like to see a better sample of bran, and also some better thirds. I think the birds fed on my formula are doing very well to average 167.3, as they were hatched so late in May.

G. G. (Leicester). I presume your cockerel has been suffering from favus, but as he is now quite clear I do not think you need worry about him. It would not affect his chicks. The Brown Leghorn X White Wyandottes, pullet chicks would be a good cross, and I think would provide you with plenty of eggs. Yes, they ought to be guaranteed pullets. The mash given in the October 24th issue as a wet mash would not have sufficient bulk for dry feeding. You might use it in the proportion of two parts of the mash when mixed to one part of good **broad** bran.

A. B. C. (Ulster). The sample of clover meal you send is not of very high quality, and I should try to get something better. Yes, it would be quite safe to breed from the chicks next January which you have hatched this year.

Newcastle (Co. Down). The sample of ground oats is good average quality, and the price fair. The fish meal appears to be an excellent sample at 20s. per cwt., but it is advisable to have a guaranteed analysis that the salt and oil content do not exceed 4 per cent. The names were omitted from the Register because we did not receive them in time. We, of course, regret this exceedingly, but the fault is not ours.

L. B. (Sheffield). The trouble is that you are feeding a mash that is far too stimulating. That would account for the thin-shelled and shell-less eggs. For the time being I should return to the old formula, namely—2 bran, 4 middlings, 1 each S.G.O., and maize meal, and one part of meat meal. What the proprietary food contained I cannot say, but evidently the addition to the mash is the cause of the trouble. It is curious these pullets should not have done well on it, and all your other pullets have done well. I should not give them too much mash feed at present. The sample of ground oats you send is a very good one indeed. Be careful not to excite these birds, as Leghorn pullets, if in a nervy condition, will often lay thin-shelled and shell-less eggs.

E. E. W. (Fleetwood). Linseed cake meal does not contain nearly such a high percentage of oil as linseed meal, but is a valuable protein. It would not have the same value for moulting hens as would the meal because of the lower oil content. The sample of limestone grit you mention is an efficient substitute for both grit and oyster shell.

H. C. H. (Bracknell). I really have not the courage to say which I think is the most profitable breed to keep, because so many people would differ from me. As regards the soil. It is suitable for either Light or Heavy breeds, and the R.I. Red should do well there. Personally I am in favour of the R.I. Red or the Light Sussex as being the most economical. You will see what I have said in the S.P.B.A. notes this week. Perhaps a discussion will follow, and you would make what you could out of it.

H. W. S. (Broadstone). No, I would not advise hatching eggs from the first-cross pullets mated to a cockerel of another breed. This is a great mistake to breed from first-crosses or crosses at all. If you allowed your R.I. Reds to be in a pen of Wyandottes, with a White Wyandotte cockerel, there would be no possibility of the purity of the White Wyandotte becoming affected by the presence of the Red pullets. A hen once mated to a certain cockerel does not maintain afterwards a chance to throw offspring tainted by this certain cockerel, even if she is mated to a different cockerel. If you had been taking "Eggs" a little longer you would have seen this explained in a recent article. No, the world's record official for the greatest number of eggs laid in 365 days, irrespective of weight, is not held by a Campine hen. The best official record we have is 343 eggs in 365 days, made in America by a Buff Orpington bred by Mr. Thomas, of Garstang.

C. H. R. C. (Wanstead). No, it is not possible to tell whether an egg is fertile before it has been incubated by breaking the egg itself and observing the yolk with the naked eye. What you would see there would be the germinal disc, and that is the contribution of the female. You can tell within two or three days of incubating whether the egg was fertile or not. With regard to the hen which habitually lays 2¾ oz. eggs. As a rule these do not hatch well, but, of course, there are exceptions with individual birds, and in this case it will be well worth trying. We certainly try and give the backyarder plenty of consideration in "Eggs," and most of our advice given there is quite applicable to his case.

POST-MORTEMS.

J. W. D. The hen was the victim of acute tuberculosis. Apply to the Secretary, Ministry of Agriculture, 10, Whitehall Place, S.W., for a free copy of Leaflet No. 78, and give it your careful consideration.

G. L. (Brighton). No suspicion of poison need attach to this case. She had a bad egg in the uterus, and behind it an accummulation of matter which caused the viscus to burst.

J. T. Pneumonia from chill.

J. H. S. Chilled. Pneumonia, not originally infectious, but liable to become so. Hold them up with the iron and quinine medicated drinking water.

C. and K. Heart failure. This bird was not fit for the breeding pen. The testes were of November condition, and should have been at least twice the size, fullness, and density, and the blood vessels standing out.

O. Yes, a broken egg in shell, blocking the road. An accummulation of yolks behind, spilling into the peritoneal cavity; breaking of investing membrane, flooding, peritonitis, collapse. That is the picture presented to the post-mortem examiner. She was too fat.

K. L. (Derby). Apoplexy. The hen was very fat inside and organs oppressed.

S. B. This chicken had spasmodic colic, and the bowel was twisted. Heart failure was consequent on acute pain. The doubled up attitude was consistent with this lesion. Horses sometimes die of pure belly ache, although they will continue to feed with a leg shot off.

C. G. T. Apoplexy. She was very fat inside, and it may well be that the others were in like condition. Fast and give a course of salines.

W. This Wyandotte second-year hen had fatty degeneration of the liver, and chronic kidney disease, every lobe having turned grey and the tubules being filled with semi-solid urine, except one in which there was a cyst larger than the lobe itself. If you had not "necked" her, she would have died in a comatose state from absorption of urea, which had already begun. She had not laid lately, nor would she have done so again. A fast and a purge seems to be wanted, and a change of food.

J. J. B. The hen was not "poisoned," but had hepatised lungs from chronic disease. A liver much wasted, after being fatty. There was a dead yolk, likely to cause self-poisoning, and the half of the heart was so completely converted into fat that it is marvellous how it could function. Despite all these things there was a perfect egg ready to be laid. Truly "the heart is deceitful above all things."

N. T. H. The White Leghorn hen was self-poisoned from ova that had mortified.

W. C. S. No, not an infectious disease. Internal haemorrhage through rupture of liver, which had undergone fatty degeneration. Your birds should be fasted and have a course of salines.

H. LEENEY.

B.W.D.

This title sends a cold shudder down the back of the poultry farmer who has had any experience of the fatal septicaemia of young chicken, as it sweeps off whole hatches or leaves but a few weaklings which are only nominally natural immunes, but really survive despite infection, and serve only as a dangerous remnant of carriers to propagate the disease another year through the ovarium of the pullet, to be incubated in the new generation, and thus keep up a vicious circle.

A great deal is known about the disease, but very little of that knowledge is of practical application or helpful to the unfortunate chicken breeder and rearer.

It is known to be due to an organism known as bacillus or bacterium pollorum, and proved to be due to it by inoculation with pure cultures and resultant white scour, if the victims live long enough to show the symptom from which it acquired the popular name. Experiments made by feeding cultures to chicks resulted in a mortality of 76 per cent. as against four per cent. of the controls. The B. pullorum was recovered from the dead birds and found active on inoculation of others. There is a greater susceptibility during the first forty-eight hours of life than at any other period, and this diminishes up to the eighth day, after which they are out of the danger period so far as "catching" it is concerned, but this does not mean that a chick more than a week old cannot sicken and die. They do, but they were incubating it before the expiry of the week. As proof of the greater susceptibility in the first two days, a number were inoculated at 24 hours, and of these 82.5 per cent. succumbed to the disease, while only two per cent. of the controls died (less than an average mortality from all causes, it may be said).

The most exhaustive experiments by the most reliable research workers go to prove that the hen is the source of infection in the majority of cases. The few female chicks that recover had better have died and been burned, for the reason above given, that they become carriers. This is no theory, the bacilli have been found in the ovary, cultivated and inoculated into chicks with similar results to those already mentioned. Many unhealthy yolks attached to the ovarium come under my notice in the course of examining thousands of dead hens. Others, not so badly infected, mature as eggs ; find a congenial situation in the incubator, and develop the disease in the newly-hatched chick. Only one such in the incubator or brooder will serve to spread disaster.

It is very generally believed that hen-hatched chicks are less liable than the artificially incubated, but it is merely a question of reckoning the "odds." There is less likelihood of one infected egg in thirteen than in one hundred or more. In the large incubator there will be eggs from a number of different hens, and the chances of infected eggs are therefore multiplied.

Symptoms.—The owner should not be deceived by the absence of the symptom which gave the malady its name. Many chicks die of shock without a stain about the vent or other sign of diarrhoea. Their very sudden collapse should be an additional reason for suspecting this disease, not one for supposing them to be unaffected by it. To be on one's guard is of much importance, and to get a diagnosis before any time has elapsed during which the malady is rapidly spreading is a thing one cannot too much impress upon breeders. Prompt isolation may make all the difference between a small mortality and red ruin. The birds less virulently affected will show dullness or appear dazed and stupid, remain under the hover, or, if outside, will give an occasional peck in a blind sort of way and not knowing what they are doing. "Stupid" perhaps sums up the attitude. Ruffled feathers, dropped wings, and the emission of a sound we know as "peeping," and pasting up of the vent are among the signs of B.W.D., but the viscid material that collects on the rump is not diagnostic or different from that of scour from simple digestive disturbance. Though the illness may be short there is usually time for the stern to enlarge like that of an old hen. The longer the affected chick lives, the more pronounced will be this enlargement of the abdomen. Post-mortem examinations does not reveal much to the layman, if I may so name the non-professional examiner, and it is generally said by experts that only by the discovery of the specific bacillus by microscopical examination can a true diagnosis be made. I do not entirely subscribe to this, although agreeing that it is the more satisfactory method. Those which I put aside as B.W.D. cases on naked eye observation always turn out to be infected with the B. pullorum when the dejecta and the diseased structures are examined under magnification. The disease most likely to be mistaken for B.W.D. is chicken coccidiosis, and the differences to the naked eye are as follows (I am not stating this on any authority but on my own observation) :—In coccidiosis the two horns or branches of the blind gut or caecum, even at a few days old, are found filled with a material of the consistence of soft cheese, and in colour from that of a lemon to a Maltese orange, and the membrane only is inflamed and not deeply. The morbid material is strictly confined to the caeca themselves, and the neck or common entrance remains narrow as in the normal. In the subject of B.W.D. the horns are both distended, and with contents much more fluid and variable in colour, and this distension with thin liquid stuff continues down the gut to the rectum, where a bulge receives it into what is practically a reservoir, which the enfeebled chick has not the strength to eject.

Authorities say that the intestine is generally nearly empty save for more or less liquid contents, and that the bowel is pale as a rule. Such often come under my observation, but in the subjects which have died as I have described it from "shock," it is quite otherwise, and the bowels are in the highly congested state one would expect from an acute inflammation which has not yet had the relief afforded by alvine discharges. These are the subjects that most need confirmation by the microscope.

The crop is generally empty or contains a little gas. The lungs should always be carefully examined. They continue clear and of normal colour unless the victim dies slowly; then there will be a dark red colouration, and more particularly on the side the bird has lain while on the way to the examiner. It may be said here that there are none of the tubercles in the lungs that characterise pneumomycosis. The streaks and patches in the liver, mentioned by some authors, does not, in my opinion, count as a symptom, as any young chick will have a parti-coloured liver. The liver is not a finished organ at the time the chick is hatched. It is yellow in colour, and should change with the absorption of the yolk to the familiar chocolate, which is known as "liver colour,' in other connections. Any illness in a chick arrests the development of the liver and of the absorption of yolk, which in cases of B.W.D. is frequently decomposed, greatly enlarged, or, on the other hand, contracted and so hard as to act like a foreign body and produce local inflammation and adhesion to the adjacent structures, and peritonitis.

Treatment.—In view of what has been said as to carriers and proved by many independent observers, is it worth while? All the usual means of prevention by sanitation are of course desirable, but some experiments with direct disinfectants are needed, such agents as chinosol can be tolerated in doses sufficiently large one might suppose to kill the organisms. Some investigators have advocated the employment of sour milk, and the Bacillus Bulgaricus, which had such a vogue a few years ago for destruction of the inimical flora of the intestine. If all chicks could be fed with the natural enemies of the Bacillus pullorum we might then rear pullets without the specific infectious germs, and bring the race to an end. It is too much, however, to hope for, but a vast reduction in the risk might be made. There will always be backward men who will keep up the supply of disease germs, whether of diphtheria or roup or tuberculosis. They are the chief sufferers themselves, but always a menace to the up-to-date poultry farmer, who may take a broody hen from them.

There is what is known as the agglutination test, by which it can be ascertained whether or no a pullet has the specific organisms within her, but testing modern flocks of thousands is rather a large order, and we are more likely to find a practical remedy in soured milk and such-like antagonistic germ-containing foods. The line of research indicated above is the only one that holds out hope of combating this deadly disease.

H. LEENEY.

ROCHDALE POULTRY LEAGUE LAYING TEST.

THIRD MONTH.

	Grade. I.	Grade. II.
WHITE LEGHORNS.		
J. Walwork	188	6
J. R. Towell	183	2
H. Holt	156	12
A. Taylor	116	52
A. C. Stott and Son	161	1
Cooper Bros.	140	4
Woodhead Bros.	142	1
Core and Pickhover	135	—
D. Whatnough	125	1
J. Hawkard	111	—
J. T. Hardman	105	—
Bamford and Holmes	86	—
BLACK LEGHORNS.		
G. E. Leigh	99	16
J. S. Wood	85	—
E. Aspinall	60	2
WHITE WYANDOTTES.		
Core and Pickhover	196	5
A. Taylor	169	—
Woodhead Bros.	162	2
J. T. Hardman	160	—
J. Wallwork	102	3
RHODE I. REDS and BUFF ROCKS.		
W. Mills	124	10
P. J. Edwards	117	1
A. Wellock	180	5

CORNWALL EDUCATION COMMITTEE.

CORNWALL COUNTY EGG-LAYING TRIALS, 1923-24.

Results for 4th Month—January 7th to February 3rd, 1924.

Pos.	Competitor.	No. of Eggs. laid.	No. of Eggs. Counting.
	WYANDOTTES.		
1.	Mrs. Tickell	85	73
2.	Mr. L. Choak	81	73
3.	Miss Nesbitt	69	69
	LEGHORNS.		
1.	Mr. H. B. Ellis	64	64
2.	Mrs. Gibson	64	64
3.	Mr. J. Jeffery	63	63
	LIGHT SUSSEX.		
1.	Mr. H. Rashleigh	72	64
2.	Major Stocker	64	56
	RHODE ISLAND REDS.		
1.	Mr. P. Moss	79	79
2.	Mr. T. H. Rowe	73	73
	OTHER BREEDS.		
1.	Mr. F. Martin (Buff Rocks)	78	78
2.	Major Fitzgerald (Ex. Leghorns)	74	51
2.	Mr. F. Martin (Barnevelders)	45	43

Total number of eggs laid (176 birds): 2,705, an increase on last month of 276.

Weather condition: Variable, fine end of month. Health of flock excellent. Few broody.

CHARLES H. TOY,

Poultry Instructor and Manager of Trials.

PRESTON AND DISTRICT UTILITY POULTRY SOCIETY.

Seventh Annual Six Months' Laying Competition, held at Woodland Grange, Penwortham, under the management of Mr. Rainsford.

Fourth Month's Report, January 3rd to 30th, 1924.

All the birds are in good health, one bird has died during the month, No. 39, W.W.

E. COLLIER, Hon. Secretary.

FOUR MONTHS' EGGS.

SECTION 1. WHITE WYANDOTTES.

Pos.	Name.	Total to date.	Total points to date.
1.	H. Pinder	265	1642
2.	J. Finn	261	2608
3.	R. Hills	246	2334
4.	J. Hodgson	238	2334
5.	W. Collinson	240	2158
6.	J. C. Barnes	221	2120
7.	W. Sharples	215	2098
8.	J. R. Dawson	216	2056
9.	Shaw Bros.	214	2004
10.	J. Hodson	212	1938
11.	Mrs. Morris Davies	203	1886
12.	Douglas Ann	192	1792
13.	N. Swarbrick	200	1778
14.	W. Gardner	196	1718
15.	J. Crompton	180	1650
16.	F. C. Tomlinson	166	1614
17.	J. J. Rawlinson	122	1166

SECTION 2. ANY OTHER VARIETY HEAVY.

1.	J. Moon (R.I.R.)	260	2314
2.	J. C. Barnes (R.I.R.)	237	2314
3.	J. Phethean (B.D.)	225	2074
4.	C. C. Humber (R.I.R.)	200	1954
5	Douglas Ann (L.S.)	181	1676
6.	H. Gabbott (R.I.R.)	163	1618
7.	N. Swarbrick (R.I.R.)	123	1206
8.	T. Windle (R.I.R.)	99	952
9	G. Cobham (R.I.R.)	87	852
10.	W. Braithwaite (R.I.R.)	24	226

SECTION 3. WHITE LEGHORNS.

1.	J. Moon	238	2194
2.	J. Phethean	237	2180
3.	G. L. Shields	218	2126
4.	W. Braithwaite	181	1850
5.	J. Grange	175	1706
6.	Mrs. T. A. Tatton	186	1636
7.	Douglas Ann	170	1600
8.	R. Mills	164	1566
9.	R. Cornall	155	1536
10.	A. G. V. Ermen	175	1510
11.	J. Hodgson	162	1478
12.	F. C. Tomlinson	151	1458
13.	W. Gardner	95	920
14.	N. Swarbrick	91	764

Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Mitchell, Miss I. M., Greencrofts, Dunmow, Essex.
Tinner, S. J., The Round Hill, South Benfleet, Essex.
Mayn, T. S., "Belmonte," Station Road, Scraptoft, Leicester.
Wells, E. R., Pinewood Farm, Plummers Plain, near Horsham, Sussex.
Hendry, J., Barrowtoun, Ballinluig, Perthshire.
Gadd, J. H., Clay Dyke P.F., Amber Hill, Boston.
Foster, Mrs. R., Park House, Queensbury, Yorks.
Petrie, D., Fruit Grower, Ladyfield, Invergowrie.
Allen, Mrs. E. J., The Cottage Tea Gardens, Monkton Road, Minster, Thanet.
Seath, E., "Nervana," Dobbs Weir, Hoddesdon, Herts.
Marsland, S., Wickersley Hall, near Rotherham.
Burn, Miss S. Petham, 9, Berkeley Gardens, Kensington, W.8.
Reeves, Miss M. M., Beacon Land, Warbleton, Sussex.
Robson, R., Hall Garth, Nether, Poppleton, York.
Crook, J. C., Ashburton, The Chase, Thundersley, Essex.
Jezzard, W. T., Valley P.F., Lyminge, Kent.
Hills, G., Sandwich Road, Ash, near Canterbury, Kent.
Hart, Sir Geo., K.B.E., Coolmore, White River, via Nelsprint, S. Africa.
Newiss, F., 14, High Spring Road, Keighley.
Mitchell, H. O., Moorcroft, Oxenhope, Keighley.
Thompson, W., Mount Pleasant, Glen Lea, Keighley.
Tisdale, E. J., Borfawen, Caersws, Montgomeryshire.
Stow, J., Langton Hill, Horncastle, Lincs.
Atkinson, E., 4, Moor Close Lane, Ambler Thorn, near Halifax.
Parkin, Miss S. M., Farnham Rectory, Blandford, Dorset.
Nunn, P. S., c.o. Mr. B. W. Mason, Searby-cum-Owmby, Grasby, Lincoln.
Fryer, R. A., Shripney Manor, Bognor.
Percival, G. E., Orchard Cottage, Southwater, near Horsham, Sussex.
Dawson, J., Wood Leigh, Sydney, Crewe.
Cooper, Miss M., Throstle Nest, Thingwall, Cheshire.
Solomon, J. C., J.P., C.C., of Struther, Dunlop, Ayrshire.
Leycester, Capt P. W., O.B.E., M.A., Perrys West Hill, Ottery St. Mary, E. Devon.
Calvert, W. L., Sunnymead, Breagh, Portadown, Armagh.
Young, C. G., The Rosary Cottage, Vicarage Farm Road, Hounslow.
Holdsworth, J. G., Braeside, Pettyour Road, Kinghorn, Fife, N.B.
Beattie, Wm., Matts Hill P.F., Hartlip, Sittingbourne, Kent.
Gordon, Miss C. W., The Jungle, Ballater, N.B.
Malins, E. W., Minster Barn, Priorsfield Road, Godalming.
McLeod, Mrs. J., Avintully, Stanley, Perthshire.
Wood, John H., 17, Dyson Street, Moldgreen, Huddersfield.

INSPECTION AND REGISTRATION OF FARMS.

IMPORTANT.

At the joint meeting of representatives of the Poultry Club, N.U.P.S., and S.P.B.A., held at the Memorial Hall on Wednesday, February 13th, the scheme for Inspection and Registration of Farms, put forward by the S.P.B.A., was fully discussed. As a result the representatives of the S.P.B.A. agreed that they would recommend their Council to postpone the operation of the Scheme.

At a meeting subsequently held the S.P.B.A. Council agreed to waive its right to proceed with the Scheme until such time as the preliminary committee, which was elected at the joint meeting to consider the extension of the scheme, should report definitely the result of its application to the Ministry of Agriculture.

With its usual broadness of vision, the Council of the S.P.B.A. has placed the interests of the industry before that of its Association, conscious that by so doing it is consulting the best interests of its members. Its position is an impregnable one. Had it chosen to proceed with the Scheme, there was nothing to prevent its doing so. It has not "climbed down," neither has it yielded to the clamour. It has simply made a generous gesture, which was acknowledged by the representatives of the Societies present at the meeting, and which we hope the members of these Societies will duly appreciate, and—when the time comes—**imitate.**

We do not wish to refer to the past discussion, but we must comment on the fact that our contemporary speaks of the heat shown in our article in the issue of February 6th, and asserts that it was not exhibited in his own journal. Perhaps he will bear in mind that it was the S.P.B.A., which was the victim of misrepresentation, suppression of material facts, and the publication of the half of letters, also of sentences taken from the context. He states, in his reply to Mr. F. W. Wait's question as to why he did not publish the Ministry's letter, that "he had not permission to do so." **Whose permission had he to take the sentence from its context which materially affected the tenor of the whole letter?** Of his reference to the grants made to the N.U.P.S. we will say no more. It is probable that we know a great deal more of the grants than he does, and the S.P.B.A. has never asked for a grant.

In our contemporary, "Poultry," a writer, signing himself "Individualist," criticises the Scheme and the S.P.B.A., and a footnote is added by the Editor, to the effect that "he is a large breeder and member." The questions which occur to us are :—

(1) Why he hides his identity under a nom-de-plume?

(2) Why, as the Scheme has been discussed since last March, was explained at the General Meeting of the S.P.B.A., and has been fully explained in the columns of "Eggs" he, as a member of the Association, has not made any suggestions or criticisms in the columns of "Eggs," or has not, as a member, communicated with the Council of the S.P.B.A.?

(3) Whether he thinks he has been loyal to the Association of which he is a member?

(4) What authority he has for saying that "the Secretary of the S.P.B.A. would give private information as to any breeder who applied for Inspection?"

(5) Why he told such a deliberate lie as to state that the vast majority of the members of the S.P.B.A. consist of small suburbanites, with a dozen or so hens per head? Can he find any other Society which has a smaller percentage of suburban members, or one which has a larger percentage of big and well-known breeders?

(6) Whether he wrote under a nom-de-plume because he felt some small sense of shame and so preferred not to disclose his identity?

(7) Whether he is aware that a member of the S.P.B.A. Council recently became a member of the Council of another Society on the plea that that Society was more interested in the "back-yarder," the class of which he described himself as a member? The S.P.B.A. is interested in the welfare of the "back-yarder," and has done all that it could to promote its interest of a class for which it has the greatest admiration. There is no Society in this country which has so many big breeders amongst its members as has the S.P.B.A.

The writer signs himself "Individualist." We congratulate him on his choice of a nom-de-plume, and we are thankful to say there are thousands of others who have broader minds and a more generous outlook than he has himself.

In conclusion, we wish to thank our contemporaries for the magnificent advertisement they have given to the S.P.B.A. They have aroused real indignation amongst its members as to the treatment which has been meted out to it, and we have, as a consequence of the controversy, had an enormous number of enquiries as to membership, and a large number of new subscribers to "Eggs."

THE ORPHANS.

They were five motherless chicks left on our hands after what had been a good hatch for the time of the year, December 11th.

We hatched 105 chicks from 150 eggs, and 100 were sent away as day-olds.

Three of the five had hatched a little late, this was not encouraging, and what to do with them we did not know, we said to each other that they would not live, but the chicks thought otherwise.

They were relegated to a small box in the kitchen, which our very handy lad converted into a primitive cold brooder. He also added another wire-covered box for a run (on which earth, etc., was scattered) with a connecting slide, and in these rather cramped quarters they lived and thrived for two weeks—no sign of leg-weakness, Mr. Editor—with an occasional outing on the lawn in another small wire run.

They were fed on the simplest fare á la Newman, with nothing but skim milk to drink, and at three weeks were transferred to an empty brooder house, and still they went on thriving.

At six weeks they emancipated themselves and now roam the garden, call in at the back door, invade the incubator room when possible, and are the friendliest and most independent orphans ever known. We have weighed them several times, and add their weights to this little history. Alas, they have not long to live, save one who was clever enough to be a pullet, and will be kept on as the children's pet and a provider of pocket money.

The four cocklets will soon be killed and eaten, for they are not birds of high degree, only a cross between Light Sussex and White Bresse.

Weights of five Light Sussex x W. Bresse chicks, hatched December 11th :—

Jan. 10th.—46 ozs.; average weight, 9.1/5 ozs.

Jan. 25th.—6¼ lbs.; average weight, 1¼ lbs.

Feb. 11th.—10¾ lbs.; average weight, 2 lbs. 2.2/5 ozs.

Individual weights on Feb. 11th.: No. 1, 2¾ lbs.; No. 2, 2¼ lbs.; Nos. 3 and 4, 2 lbs.; No. 5 (pullet), 1¾ lbs.

THE SUSSEX POULTRY CLUB.

A committee meeting was held at 3, Vincent Square, Westminster, on February 6th, Mr. J. Russel in the chair. Present: Mr. A. Amey, Mr. S. R. Cree, Mr. A. J. Falkenstein, Mr. A. P. F. Grant, Mr. T. R. Robinson, Mr. F. M. Rogers, Mr. Clem Watson.

Apologies were received for non-attendance from Messrs. Ashburnham, Goode, Horton, Jefferson, S. C. Sharpe, Major Morrison, and the Secretary.

YEAR BOOK.—It was resolved that the lowest tender for a book similar to last year's, but larger, be accepted .

WORLD'S POULTRY CONGRESS AT BARCELONA.—It was announced that the club had tendered for the exhibition of all the four Sussex varieties in both sections at this Congress as one unit, and it was anticipated that this tender would be accepted, and the details of it were being circulated amongst the members of the club.

Mr. Aney proposed, and Mr. Rogers seconded, that the action of the Chairman and Mr. Grant in making this tender should be ratified.

Mr. I. R. Simpson, 41, Asbury Road, Stockingford, Nuneaton, and Messrs. Balksly and Blythe, West Moors, Dorset, were proposed as new members. The next meeting was fixed for March 5th, at 11.30.

HAROLD MAYALL, Hon. Sec.

POST-MORTEMS—Continued.

N. K. D. Yes, it is an infectious disease, known as B.W.D.

E. P. for Mrs. H. Both cases were alike, and began with acute indigestion, then spasmodic colic, failing heart and congestion of the lungs. You would do well to follow Mr. Newman's recommendations as to feeding.

E. G. The hen was not suffering from any infectious disease, but was a mass of egg tumours, and her musculature much wasted. Either handling or trap-nesting would have told you long ago that she had gone out of business. The piling up of tumours in the case of rich producers is what one may call a fair trade risk, but keeping them on in that condition is something else, verbum sap.

"Primose." The White La Bresse had produced more mature yolks than could find passage, the umbilical attachments had broken, and the abdomen was flooded. She was too fat. A fast and morning salines might well be prescribed for her associates, by way of lowering tension.

J. M. What she actually died of was inflammation of the heart sac (pericarditis), but it was brought about by tuberculosis. The spleen was just a mass of tubercles, and there were others distributed throughout the mesentery and intestines. You should apply for a free copy of Leaflet No. 78, Ministry of Agriculture, Whitehall, S.W., and give the matter your serious consideration.

E. E. C. The White Leghorn pullet died of haemorrhage from a ruptured liver, which was degenerate.

H. LEENEY.

Weights for Drugs. A correspondent asks if grains of sulphate of iron prescribed mean Apothecaries weight, and if drugs are bought and sold by Avoirdupois? The answer is, Yes. Exact dosage is not so important as the beginner usually supposes. A correct diagnosis and the appropriate remedy is the what we should seek. A fowl can take 15 grains of the above with safety, but will profit most by one grain to two at most, and from this example our querist may infer that a variation of any portion of a grain, as when fowls do not drink an equal quantity of a medicated water, is not of any importance, but is a valuable method of medication where large numbers are concerned.

LECTURE AT MANCHESTER.

The eighth of the series of Poultry Lectures under the auspices of the Manchester Agricultural Committee was held on Friday evening, 8th February, 1924, at the Crumpsall Public Library.

Councillor J. J. Kendall took the chair, supported by Mr. Tom Newman, Vice-President of the National Poultry Council. The Chairman said poultry-keeping could be looked upon as one of the blessings out of the Great War. Travelling extensively he had himself been much impressed by the sight of allotments and poultry all over the country, but he regretted that there was a slight falling off in the cities and large towns, possibly due to the builder whom we have to welcome on account of the housing question, which to-day is such a serious problem. However, agriculture should have its proper place, and every encouragement given to those who are trying to produce, whether it be eggs or growing crops.

(It is to be hoped these latter remarks of the Chairman will bear fruit by all local authorities seeking the advisability of securing permanent allotments for the benefit of the citizens. We glean from the papers the ratepayers of the City of Leeds are making a determined stand to retain permanent tenure of their "plots.")

Councillor Kendall introduced the Lecturer, "a Manchester favourite," Mr. Wm. Hamnett, of the Myrtle Poultry Farm, Blackpool, who would address the meeting on "Natural and Artificial Hatching and Rearing."

The Lecturer confined himself as much as possible to methods more suitable for the smaller man, which he thought would be preferable to city poultry-keepers. Many poultry-enthusiasts commenced operations from the incubator, but if good, strong, healthy progeny was the aim it was necessary to make the start from the birds which laid the eggs. It, therefore, was of the greatest consequence to know the history of the "Stock Birds," and this should be the starting point if success was the goal. To the commercial man a hen doing under 200 eggs was of very little use, likewise to the smaller man, if conditions were detrimental don't attempt chicken rearing. It was better to breed from pullets which had laid in October onwards than from hens of which nothing was known. Signs of weakness in chicks, cull, cull, cull, and any adult bird which had been sickly should not be allowed to enter the breeding pen of the following season. One of the greatest factors in choosing a bird was the EYE—brightness, prominent, full of vigour—was undoubtedly a sign of life and stamina, whereas a bird with any weakness in the eye—sunken—should be discarded.

Eggs of good shape, size, texture, free from wrinkles, uniform in size, good colour, freshness, only should be used either under the hen or in the incubator. Complaints to which chickens are subject, White Diarrhoea, caused through dirty eggs, the germs attaching themselves to the shell of the egg and transmitting to the chick. If eggs are in the least soiled, it is advisable to use a teaspoonful of Yadil mixed in a pint of water, and the eggs carefully wiped over with this to cleanse and free from germs which may be present. To those who hatch early from eggs of their own stock, see that these are collected frequently and place in a room having a temperature of 55 degrees, this often will save disappointment by a better hatch. Much has been said in respect of moisture and great stress laid upon it, but experiments go to prove that if the eggs are absolutely fresh, added moisture is not necessary and need not be applied unless it happens to be a period of cold easterly winds, which are very searching and drying, then a little water sprinkled round the nest would be advantageous. The coops are another important item, it being necessary to make certain that they are free from insect pests. The best method is to thoroughly creosote at the back end, this being a great enemy to pests, and it is rarely they are to be found in a well-creosoted coop.

The first feed to chicks appears to be the fatal point with amateurs or the novice poultry-keeper. It is safer to err on the side of severity than through kindness to feed too soon; therefore, if left until the third day it will be found much safer and better for the digestive organs of the chicks. Feeding too early does not allow Nature's food—the yolk of the egg—to digest properly, from which digestive troubles set up and its consequent disasters. The grain feed should be kibbled wheat and groats, crushed oats rather than something which resembles a rainbow mixture, leaving until the chicks are a few weeks old before giving seeds having hard shells, for they are not like the birds of the air, hulling before eating. Green food is necessary if good, strong, robust chicks are expected.

The Chairman, before inviting questions, asked the Editor of "Eggs" for a few words. Our friend of the S.P.B.A. said he had hoped to be only a listener, having accompanied the Lecturer whilst on a visit North. It gave him pleasure to be present, knowing the Manchester Agricultural Committee were doing all possible for the benefit of poultry-keepers, hoping the good work would be long continued, and the citizens generally appreciate these services on their behalf by supporting the Lectures promoted by this Manchester Committee.

The first question from a lady admirer wished to know when and where the next lecture by Mr. Hamnett was to be, as she gained so much knowledge by his advice. Many questions asked and replied to, the Chairman said he was very pleased to have had the support of such an important person of the poultry industry, and felt sure the meeting welcomed Mr. Tom Newman and appreciated his attendance. Turning to Mr. Hamnett, Councillor Kendall, in proposing a hearty vote of thanks to the Lecturer, could not help but feel the meeting had profited by the commonsense suggestions and homely chat, this being unanimously carried with acclamation. A few well-chosen words from a member of the audience to the Chairman for presiding closed the meeting.

W. G.

HARPER-ADAMS' AGRICULTURAL COLLEGE, *NEWPORT, SALOP.*

POULTRY LAYING TRIALS, 1923/1924.

REPORT FOR THE THIRD PERIOD.

The third period of the present Test—December 27th to January 23rd—has seen a remarkable improvement in egg production. The increase has been gradual, and during the last week of the period 90 dozen eggs were collected daily. Size of egg has also improved.

In spite of the unsettled weather conditions the general health of the whole flock has been highly satisfactory. A few birds have passed through the broody coops.

The Pen of Light Sussex in the Exhibition Section still maintains a lead over all breeds.

Below is given a summary of the Leading Pens in each section:—

SUMMARY OF THE LEADING PENS.

Pen No.	Name and Town.	No. of Eggs.	Position.
	SECTION 1. WHITE LEGHORNS.		
50.	H. Smith, Sheffield	324	1
9.	J. L. Brown, Bristol	297	2
59.	Major W. Hayland Wilson, Longparish	292	3
	SECTION 2. WHITE WYANDOTTES.		
111.	Mrs. Alec Wilson, Garth	311	1
94.	J. and W. Purdie, Lanark	308	2
72.	Philip Clapham, Lyonshall	306	3
	SECTION 3. RHODE ISLAND REDS.		
133.	R. Midwood, Rugby	268	1
142.	F. and A. H. Sanders, Rugby	268	2
146.	C. W. Stearn, Cambridge	261	3
	SECTION 4. SUSSEX.		
163.	Col. A. Dugdale, C.M.G., D.S.O., Glos.	338	1
169.	Mrs. Alistair Robertson, Sussex	304	2
165.	W. M. Golden, Rugby	292	3
	SECTION 5. ROCKS.		
184.	Capt. A. A. Plimpton, Beverley	302	1
150.	F. R. Welch, Worcs.	271	2
187.	L. A. Wright, Warwick	252	3
	SECTION 6. BARNEVELDERS.		
195.	W. R. Partridge, Cirencester	194	1
190.	R. C. Craven, Huntingdon	170	2
189.	Capt. D. D. Brodie, Horsham	166	3
	SECTION 7. BLACK LEGHORNS.		
216.	Frank Snowden, Keighley	271	1
208.	J. H. Hodkinson, Hunts	224	2
218.	Venn Carr, Ltd., Maidstone	228	3
	SECTION 8.—LA BRESSE.		
223.	H. Durrant, Hurstpierpoint	242	1
225.	Mrs. Hines, Winchester	243	2
224.	R. Charles, Coulsdon	196	3
	SECTION 9. ANCONAS.		
237.	W. Hamnett, Blackpool	202	1
236.	F. E. Derham, Hilton	180	2
242.	S. Street-Porter, Isle of Ely	150	3
	SECTION 10. COLUMBIAN WYANDOTTES.		
248.	S. J. Shepherd, Bridgnorth	269	1
250.	L. H. Wace, Bridport	186	2
249.	L. H. Wace, Bridport	179	3
	SECTION 11. ANY OTHER VARIETY.		
252.	H. B. Howe (B. M.), Leicester	286	1
253.	Longworth Bros. (B. O.), Rawtonstall	226	2
255.	The Ryhall Mill Poultry Farm (B. B.) Ryhall	223	3
	EXHIBITION SECTION.		
264.	A. Howard (L.S.), Maidenhead	327	1
263.	W. Hamnett (B. R.), Blackpool	298	2
267.	Ouse Manor Farms (R.I.R.), Sharnbrook	270	3

SINGLE PEN TEST.

Pen No.	Name and Town.	No. of Eggs.	Position.
	SECTION 1. WHITE LEGHORNS.		
S.P.			
3.	Miss H. Baylis, Stratford-on-Avon	63	1
22.	Stanley Street-Porter, Isle of Ely	65	2
2.	Tom Barron, Catforth	61	3
	SECTION 2. WHITE WYANDOTTES.		
38.	C. W. Shepard, Malpas	71	1
39.	Frank Snowden, Keighley	63	2
42.	B. Threlfall, Southport	61	3
	SECTION 3. ANY OTHER LIGHT BREED.		
57.	C. W. Shepard (B. L.), Malpas	56	1
55.	B. Robinson (B. L.), Spilsby	52	2
53.	G. B. Metcalfe (B. L.), Lechlade	50	3
	SECTION 4. ANY OTHER HEAVY BREED.		
74.	B. Robinson (R.I.R.), Spilsby	71	1
71.	Misses D. and M. Keech (L. S.), Market Harboro'	65	2
68.	W. M. Golden (L. S.), Rugby	59	3

CORRESPONDENCE—Continued.

FLOCK AVERAGES.

To the Editor of "Eggs."

Dear Mr. Newman,—Reference, Mr. Herbert Rowntree's letter, published on 6th February. I did not wish any inference to be drawn from my letter that trap-nesting detracted from the usefulness of flock averages. On the contrary, I am a strong advocate of the trap-nest and consider that if used in conjunction with flock averages it enhances the value of the latter. But it is not everyone who considers he can afford to trap-nest all his layers, and therefore the community system of a flock average is resorted to for the purpose of obtaining certain information necessary to the welfare of a farm. Nay, I suggest a solution to suit Mr. Rowntree's particular position in respect to the requirements of his potential clients. He is willing to trap-nest to 31st December in order to place on record when a pullet has laid its one egg by 31st December. In order to achieve his object, and should the whole flock have failed to reach this minimum standard by the date mentioned, he has to trap-nest every bird till the close of that period in order to find a new-comer into the field of activity. This necessitates reading the number on the leg. Why not jot down these numbers and complete the process thoroughly? If one is trap-nesting a large number of birds it depends entirely on the power of the memory of individuals to recollect a long string of numbers. There is, of course, the alternative method of ringing a bird when it has laid its one egg ; and I grant that on a dark winter's morning it takes less time to feel the presence of a ring than to read a number on it. But if trap-nesting is carried to its logical conclusion Mr. Rowntree is able to discard all useless birds by 31st December ; the remainder possess an individual winter record and a flock average of their own. When trap-nesting ceases the flock average system can continue. Thus Mr. Rowntree can satisfy his enquirers by (a) individual winter records if asked for ; (b) average winter record ; and (c) flock average for the year of the birds he retains.

Certainly the above lines could have been compressed into half a dozen sentences, but I have endeavoured to show that if a system is worth introduction its value is enhanced by thorough application, especially when the additional labour involved is not of any great moment. There is no novelty in the suggested procedure, nor does it come under the title of "Flock Average" as universally understood.

2. Major A. W. Disney-Roebuck's letter in the same issue of 6th February raises several interesting points. I take it that one has to "get up very early" to read some advertisements. I quite agree that the more lucid the information the more satisfactory is the relationship between the seller and the buyer. The spirit of confidence manifests itself in "Repeat" orders.

The first point in connection with a flock average is to ascertain the method by which the monthly average of the flock is generally obtained. I know there are many who take the totals on the 1st day of two succeeding months, add them together, and divide by 2. The result is considered as a sufficiently approximate average for the prior month. For example, to obtain the average number of birds in a flock during January the total on 1st January (say 100) is added to the total on 1st February (say 80) and divided by 2 (result, 90). If the reader will refer to "Eggs" of 12th December, 1923, page 402, and if he will assume that the closing stock on hand of 80 birds on 30th November is also the opening balance stock on 1st December, he will find that 217 plus 80 divided by 2 gives 148½ as the daily average under this method of calculation. The correct average is 155.4. A daily average of 148½ would give a flock average of 11.32 against the correct one of 10.82.

The next point is in connection with the cause of the difference between the two methods of calculating the annual flock average, one of which gives 178.80 (to quote Mr. Disney-Roebuck's figures) and the other 176.3. The procedure which produces the latter figure is not correct, as there are underlying factors which influence the calculations to an incorrect result. One is evident. The average number of birds for the year is not 84. It is certainly near enough for practical purposes on a small scale, but mathematically it is incorrect. The mathematical correct average is 83.89, because all the months of the year are not of equal length. This small difference makes little appreciable alteration to the figure 176.3. But before going further I would like to correct the flock-average given as 178.85 to 178.48 on the basis of 48.9 per cent. of 365.

Then there is the question of "monthly percentages" versus "monthly flock averages." The latter method appears the simpler ; the total number of eggs laid in a month is easily divided by the average number of birds. There are many to whom percentages are a veritable nightmare, it being necessary to multiply the average number of birds by the number of days in that month, then after multiplying the total number of eggs in the same month by 100 it is necessary to divide the latter by the former. There is undoubtedly more labour in obtaining monthly percentages than in obtaining monthly flock averages. In any case the former must be converted into the latter in order to convey information in the recognised term of production—the average number of eggs per head on the average of the flock. I give below the "Monthly Flock Averages" to show the simplicity of the procedure, based on the items of the letter under reference :—

Month.	Monthly Flock Average.
November	10.04
December	14.50
January	11.62
February	11.32
March	18.24
April	21.35
May	21.10
June	18.77
July	18.67
August	14.30
September	12.90
October	5.66
Total	178.47

It will be seen that the monthly flock average can be read off any month without calculation. During any period to the end of the year it has only to be added up to be readily available. With percentages the procedure is much longer. Poultry farmers, I take it, desire to save all unnecessary clerical labour.

Yours faithfully,

E.

OUR FRONT COVER.

Duck breeders will find special interest in the front cover of this issue of "Eggs." The "Duke of Wellington," the drake portrayed there, is the son of "Lady Knight," who laid 363 eggs in 365 days in the New Zealand Test in 1920-21. Imported in 1922 by Mr. R. H. Berney, M.A., West Common, Harpenden, Herts. He is the grandsire of the pen, now leading all sections in the National Test. A pen of his daughters won the bronze medal in the Northern Test, 1922-23, and one daughter took the third prize for ducks at the People's Palace, 1923.

Mr. Berney has a notable pen of White Runners, which includes "Daisy," the best individual White Runner in the National Test, 1921-22; "Dimple," her sister, was only 11 eggs behind, and the drake "Duke" took first prize at the Herts County Show.

Mr. Berney's present pen of White Runners has laid 129 eggs in November. The highest total laid by any five birds in any test in that month. This pen was chosen to represent the breed at the International Exhibition at the Hague, September, 1921.

"LEICESTER MERCURY" COUNTY LAYING TRIALS.

Fourth Monthly Report covering the period Jan. 7 to Feb. 3, 1924.

The egg production continues good, and during the last 28 days 3,848 eggs have been laid, bringing the total for the 16 weeks up to 13,689. Of this number 9,773 were 1st grade, 3,667 2nd grade, and 239, or less than 2 per cent., have been under weight. Three birds have laid 96 eggs in the 112 days, the average for the whole flock of 240 birds being 56. One bird died from enteritis, but the rest of the birds are in good health, and no cases of disease have occurred.

The position of the leading pens is as follows:—

Pen No.	Competitor's Name.	Breed.	Eggs laid. Grade A	B.	C.	Position
	SECTION 1.—DIVISION A.—LIGHT BREEDS (6 birds).					
12	J. & A. Moore	(B. Leghorns)	419	8	0	1
6	Mrs. R. Crawford	(W. Leghorns)	392	36	0	2
2	F. Porter	(W. Leghorns)	262	157	25	3
10	T. F. Wildman	(W. Leghorns)	250	161	1	4
5	W. S. Woodward	(W. Leghorns)	305	85	0	5
7	W. Crookes	(W. Leghorns)	278	119	3	6
	SECTION 1.—DIVISION A.—HEAVY BREEDS (6 birds).					
33	H. B. Howe	(W. Wyandottes)	397	81	0	1
35	Mrs. Briers	(W. Wyandottes)	344	92	0	2
23	E. Hill	(R.I. Reds)	297	144	2	3
28	T. F. Wildman	(R.I. Reds)	325	109	0	4
18	A. Wright	(R.I. Reds)	328	89	3	5
26	Mrs. M. V. Hughes	(R.I. Reds)	383	9	0	6
	SECTION 2.—ANY BREED (2 birds).					
42	J. T. Kidger	(W. Wyandottes)	132	32	1	1
44	L. A. Peberdy	(R.I. Reds)	68	75	0	2
39	Mrs. M. V. Hughes	(W. Leghorns)	80	53	2	3
37	J. A. Mills	(W. Leghorns)	64	70	3	4

H. T. ATKINSON,
County Instructor in Poultry-Keeping.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 15th FEBRUARY, 1924.

GRAIN AND FEEDING STUFFS.—British wheat has advanced on the average to 11s. 1d. per cwt., or 1s. 7d. per cwt. higher than in the corresponding week of 1923. Imported wheat is also firmly held at higher figures. All grades of barley, both home-grown and imported, are dearer; British malting samples now average 12s. 2d. per cwt. and feeding descriptions 10s. 4d. per cwt., as compared with 10s. and 7s. 6d. respectively at this time last year. No material alteration is recorded in quotations for oats, and trade is only moderate, except for the finest samples, but maize is in short supply, and the upward trend of prices is more pronounced this week, Argentine realising 10s. 6d. to 10s. 10d. per cwt., or about 1s. 3d. per cwt. more than at the beginning of the year.

Milling offals are meeting a fairly good trade, and prices are on the whole firmly maintained, while meals are again dearer, maize meal now averaging £11 12s. 6d. per ton, or 30s. more than at this time a year ago. Cotton seed cakes are in good request.

MILLERS' OFFALS.—Bran (British): Bristol, £8 17s.; Hull, £7 17s.; Liverpool, £8; London, £7 17s. Broad Bran: Bristol, £9 15s.; Hull, £9 7s.; London, £8 15s. Fine Middlings (Imported): London, £10 2s. Coarse Middlings (British): Bristol, £9 2s.; Hull, £9 5s.; Liverpool, £9; London, £9. Pollards (Imported): Bristol, £8 5s.; Hull, £7 10s. Rice Bran: Bristol, £7 17s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £11 7s.; Hull, £11; London, £11 12s. Maize Meal: Bristol, £11 15s.; Hull, £11 11s.; Liverpool, £11 2s.; London, £12. Maize Meal (S. African): Liverpool, £10 12s.; London, £10 10s. Maize Germ Meal: Bristol, £11; Hull, £10 15s.; London, £10 5s. Maize Gluten Feed: Bristol, £11; London, £9 7s.

EGGS AND DEAD POULTRY.

A moderate trade prevails for the good supplies of British eggs available and prices are lower, 1st quality averaging 22s. per 120 as compared with 24s. 9d. a week ago; imported eggs are fairly plentiful and cheaper, continental showing a sharp decline. Poultry is in fair demand and sells at recent rates, except at Liverpool, where lighter offerings have caused prices to advance.

Week-end Prices—Eggs (per 120): British, 22s., 20s.; Irish, 22s., 19s.; Danish, 23s. 6d., 21s.; Dutch, 22s. 9d., 20s.; Italian, 22s., 19s.; Chinese, 17s., 14s.; Egyptian, 13s., 12s.

Dead Poultry (per lb.): Fowls—Surrey, 1s. 8d., 1s. 6d.; Irish, 1s. 5d., 1s. 2d.; Others, 1s. 7d., 1s. 3d. Ducks, 1s. 6d., 1s. 3d.; Geese, 1s. 1d., 11d.; Turkeys, 1s. 6d., 1s. 4d.

EGGS.

Per Doz.—Ashford: First, 2s. 2d.; Second, 1s. 10d. Birmingham: First, 2s. 9½d.; Second, 2s. 3d. Carlisle: First, 2s. 1d. Chelmsford: First, 2s. 3½d.; Second, 2s. 1¼d. Denbigh, First, 1s. 10d.; Second, 1s. 8d. Derby: First, 2s. 6d, Dorchester: First, 1s. 9¾d. Exeter: First, 2s. 4d.; Second, 2s. 2d. Guildford: First, 2s. 2d.; Second, 2s. 5d. Hereford: First, 1s. 9d. Hull: First, 2s. 0d. Ipswich: First, 2s. 6d.; Second, 2s. 0d. King's Lynn: First, 2s. 4d.; Second, 2s. 2d. Lincoln: First, 2s. 3d. Llandilo: First, 2s. 0d. Montgomery: First, 2s. 6d. Newport (Mon.): First, 2s. 1d.; Second, 2s. 0d. Norwich: First, 2s. 4d.; Second, 2s. 2d. Oswestry: First, 2s. 0d.; Second, 1s. 9d. Penzance: First, 1s. 7d.; Second, 1s. 6d. Salisbury: First, 2s. 2d.; Second, 2s. 0d. Shrewsbury: First, 2s. 3d.; Second, 2s. 0d. Skipton; First, 2s. 3d. Truro: First, 1s. 7d. York: First, 2s. 4d.; Second, 2s. 2d.

FOWLS.

Per lb.—Birmingham: First, 1s. 4d.; Second, 10d. Derby: First, *5s. 3d.; Second, *3s. 0d. Exeter: First, 1s. 7d. Hereford: First, 1s. 3d.; Second, 1s. 2d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 1s. 7d.; Second, 1s. 3d. Newport (Mon.): First, 1s. 5d. ;Second, 1s. 2d. Shrewsbury: First, 1s. 4d.; Second, 1s. 2d. Skipton: First, 1s. 8d.; Second, 1s. 5d. Truro: First, 1s. 3d. York: First, *5s. 3d.; Second, *4s. 0d.

DUCKS.

Per lb.—Birmingham: First, 1s. 2d.; Second, 1s. 0d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 6d. Hereford: First, 1s. 3d.; Second, 1s. 2d. Llandilo: First, 1s. 7d.; Second, 1s. 4d. Newport (Mon.): First, 1s. 3d. Shrewsbury: First, 1s. 6d.; Second, 1s. 4d. York: First, *6s. 0d.; Second, *4s. 9d.

* Per Head.

EG

Wednesday, February 27th, 1924.

EGGS

THE OFFICIAL ORGAN OF THE SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

Registered at the G.P.O. as a Newspaper.
Vol. IX. No. 9. Copyright.

Edited by TOM NEWMAN.
PRICE TWOPENCE.

Twelve Months Post Free 12/8
Six Months „ „ 6/4
Three Months „ „ 3/3

My Khaki-Campbell Ducks

The latest Report of the National Laying Test my Khaki-Campbell Ducks hold **1st Position**, and in the 1922-23 National Test my Khaki's won the Bronze Medal, and in the Two-Year Laying Test my Khaki-Campbell Duck laid 315 eggs in 365 days, and 265 eggs in the second year (every egg over 2 ozs.), making a World's Record for laying.

I can supply Eggs for Sitting and Day-Old Ducklings.

Special Pen 1 ... ... Eggs, **30**/- doz. } Ducklings from Special
Special Pen 2 ... ... Eggs, **20**/- doz. } Pens 1 and 2 ... **55**/- doz.
Pen 3, Eggs, **15**/- doz. Ducklings, **35**/- doz.; reduction on 100.

Selection of Eggs from all Pens,

£7 15s. per 100, carriage paid.

I also keep White Runner Ducks, Light Sussex, White Leghorns.

Miss HARRISON BELL,
Welwyn - - Herts.

My Hen and Duck Catalogues Free.

Our Positions speak for themselves

NATIONAL.—Out of 507 Pens competing—
Our White Leghorns: 2nd.
„ Black Leghorns: 13th.
„ White Wyandottes: 19th.

NORTHERN.—Out of 200 Pens competing—
Our White Leghorns: 9th.
„ White Wyandottes: 4th.
„ Black Leghorns: 9th.
(One Bird Short).

EAST ANGLIAN.—Out of 62 Pens competing
Our Rhode Island Reds: 6th.
(One Bird Short).
„ Light Sussex: 3rd.

Sittings from Sisters to Above: 21/-
Carriage Paid.
From other Pens: 15/10 and 12/6.
Chicks Double.
Terms: Cash with Order.

Right on Top!

The WHITE HOUSE Poultry Farm
ST. NEOTS, HUNTS.

WHAT YOU ARE LOOKING FOR

A LARGE BROWN WINTER EGG
HIGH FECUND STRAIN.

PROOF—I HAVE IT

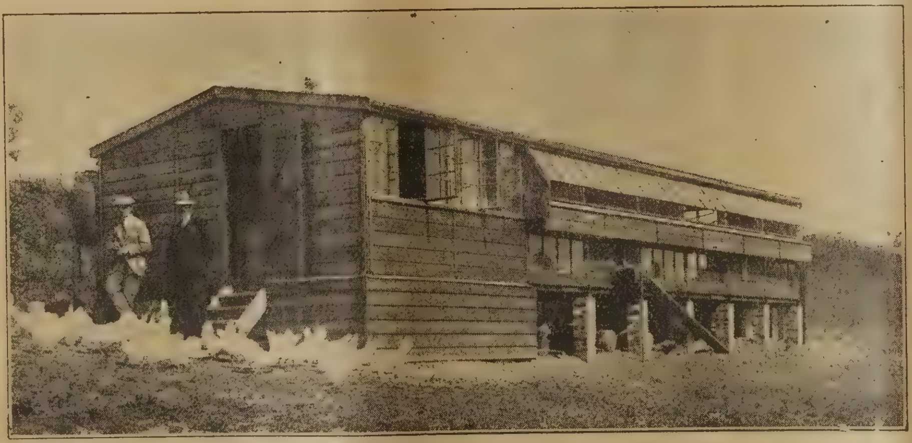
MY PEN OF W. WYANDOTTES WON CHAMPIONSHIP AND GOLD MEDAL OVER ALL BREEDS (2,000 BIRDS) AT 1922 HARPER-ADAMS' TRIALS WITH THE BEST GRADE OF EGG OF ANY PEN THAT HAS EVER COMPETED IN THIS COUNTRY—i.e., 1,346 EGGS. ONLY 5 UNDER 2 ozs. AVERAGE WEIGHT 2.3 ozs.

AGAIN IN 1923 MY PEN AT HARPER-ADAMS' TRIALS WON SILVER MEDAL WITH A BETTER GRADE OF EGG THAN ANY PEN IN PUBLIC TEST IN 1923—i.e., 1,265, ONLY 11 UNDER 2 ozs. ALSO BEING AWARDED THE POULTRY CLUB MEDAL FOR BEST BREED CHARACTERISTICS (ONLY AWARD) IN THE SAME COMPETITION AND WITH SAME PEN.

AND AGAIN MY PEN 118 AT NATIONAL EGG TEST, HELD AT BENTLEY, 1923, WON SILVER MEDAL. 981 EGGS SCORE 981.

YET AGAIN MY PENS IN THIS YEAR'S HARPER-ADAMS' AND NATIONAL EGG TESTS HAVE NOT LAID A SINGLE 2nd GRADE EGG AND HOLDS HIGH POSITIONS.

FRED. H. COLLINS,
ST. JOHN'S P.F., BEWDLEY.
LIST FREE ON REQUEST.



Extensible - - Unit - - Buildings

Showing an All-purpose House 40ft. by 15ft. Two units used as food and implement store. Supplied to A. PERKINS, Esq., Whydown Place, Bexhill, Sussex.

To quote only one of many similar instances: 40 pullets hatched in May, 1921, comprising White Leghorn, Black Leghorn, Wyandottes, Rhode Island Reds, and Speckled Sussex, were housed in five Elite Breeding pens; they commenced to lay in October, and being fed wet mash on the same lines as by their breeder they averaged from 247-296 per bird per annum. These birds will be bred from in the coming season, and their individual records will be published in due course.

W. H. COLT, M.N.U.P.S., S.P.B.A., Bethersden, Kent.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, February 27th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of " Eggs " to their poultry-keeping friends.

Subscription to " EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

A FIRST CROSS LAYING TEST.

At the risk of being misunderstood, misquoted, and, perhaps, accused of ulterior motives, we must confess a certain amount of surprise at the enthusiasm which is evinced in certain quarters at the announcement that a laying test for first cross pullets is to be held. We are told that such a test is unique in the annals of laying trials in this country. That is indisputable, but one may be permitted to doubt the correctness of the assertion that it will be of immense value and interest to poultry-keepers. On the contrary, we are compelled to take the opposite view. We fear it will be a retrograde step, calculated to do an immense amount of mischief. Such a test can only be in the nature of a lottery. It demands no particular skill on the part of the breeder, it will be detrimental to the best interests of the pedigree breeder, will tell us very little that we do not know, will have little educational value, and will lead to the encouragement of cross-breeding, the next step to which is mongrelisation.

To the laying trials we owe the incentive which has been given to scientific breeding in this country. The patience and skill of the breeder has resulted in an improvement in the productive powers of our stock, far beyond the wildest dreams of the pioneers of selective breeding. Attendant upon this remarkable success have come evils which the breeders in those early days could not foresee, which are now clearly recognised, and which it is now realised can only be overcome and avoided in the future by the practice of selective breeding in the broadest sense of the term.

So far as we can see, no convincing plea has been put forward for a test of this description. What can it prove? Can it prove that the cross is more economical than the pure breed? Surely no such claim will be made even should the egg yield of the birds in the test be higher than the average yield of the pure-breeds. Then there is the question of the yield of the cross-bred in its second year. There is some reason to believe (we do not assert this as a fact) that the first-cross in its second year does not lay such a high percentage of eggs to its pullet year record as does the pure-bred. The lucky owner of the winning pen will not owe his success to his skill as a breeder. There is reason to doubt whether the progeny from a mating of two highly fecund pure breeds will prove more productive than the progeny of mediocre parents.

It is urged that the cross-bred possesses more vitality than the pure. That we are not prepared for a moment to dispute, but there is incontrovertible evidence that the vitality of our pure-bred stock has shown considerable improvement during recent years, and we should be doing Mr. J. N. Leigh an injustice if we did not add that this is due to the very considerable influence he has exerted by constantly drawing attention to mistakes breeders were making in their craze for high records. Stamina is a matter of selective breeding, and the rejection of the unfit. It is a test of the skill of the breeder. We can maintain it and improve it, and, combined with high production, we have the economical fowl. The crossing of two pure-breeds must result in that wide variation which the skilful breeder takes such pains to avoid.

We regret we cannot compliment the "Daily Mail" on its recognition of the demands of the time. There is no evidence of such demand. The patience and skill of the pedigree breeder has been the greatest factor in the growth and prosperity of the industry in this country. It deserves every encouragement, and we are bound to say that this test is likely to have the reverse effect. Cross-breeding is always uncertain. Often from mediocre parents we get pullets which put up better records than their parents, and the mating highly fecund parents of different breeds is frequently disappointing.

It is also urged that the sex-linked cross will prove of the greatest advantage to the commercial egg farmer, because he can detect the sex of the chick at hatching and kill off the cockerels immediately.

Surely this is not an economical proposition, to go to the trouble and expense of producing and incubating 2,000 or 3,000 eggs and then destroy 50 per cent. of the resultant chicks. If we accept such a dictum as this, then there is little hope of progress. Admittedly there is no profit attached to the cockerels of the light breeds at the present time, but we should be able to find some solution to this problem, and turn a loss into a profit, and to this end we should devote our energies.

We are sorry to write in this strain, and heartily wish it was possible to take any other view, but are compelled to say that we think that the proposed test will be detrimental to the truest interests of the pedigree breeder and to the industry as a whole. If originality was wanted in the laying trials, there are surely other directions in which it could be found—something which would mean real advancement, even if it had only been a test limited to the lesser-known breeds, eliminating for example the White Wyandotte, White and Black Leghorn, the Rhode Island Red, and the Buff Rock, and confining it solely to breeds which are known to possess great utility qualities, but which at present suffer from the prominence of these mentioned above.

CHICKS AND HAWKS.

The following is from the "American Poultry Journal," and may be of interest to readers who are troubled with hawks. We wonder what Capt. Leeney will think if he reads it:—

> "I have fed my chicks nux vomica on three different occasions when hawks were decimating my flock, and on each and every occasion the hawk has failed to return after eating the chick which had been fed the poison. I use the powdered nux vomica, and put about a teaspoonful in dry feed in the morning, crumble corn bread being preferred, and feed it to 25 chicks. It is poison, but I have never had an accident when feeding it, neither do I know it killed the hawk. All poultry experts, save one that I have read, say that it does not do the work, but one writer said that it would. That the chick stored the poison in the crop, and the hawk, having no crop, the poison went direct to the stomach, and killed him. I am not wise enough to say with certainty, but simply give my experience. Feed the poison every other morning for three days, and then stop three days."

Readers are requested to note that we are not recommending this experiment. We have known fowls to be killed by eating poisoned wheat intended for carrion crows.

POST YOUR COPY EARLY

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

ARTIFICIAL LIGHT.

"I venture to say that in five years' time it will be proven that I am now going to hit not far from the bull's eye; and, to be perfectly frank and plain, the statement is this: That artificial illumination and the abuse of it, coupled with forced feeding, is doing more harm, and is the cause of more disaster to-day among poultry-men in this country than any other one thing. I do not want to be misunderstood. I do not say that I am entirely averse to electric lights; I am, however, most positive that their use on any specimen, male or female, that is to be used for breeding purposes is detrimental, and I do not sanction their use in any way except to a slight extent when desiring eggs, and then upon specimens that are not to be used in the breeding pens.

"I have formed the above experience from personal experience and from interviews with over 300 poultry men of all types during the past several years." (Mr. F. D. Rogers in the "American Poultry Advocate").

It is said that there is nothing new under the sun. Professor Castello found in an old book that artificial lighting to produce more eggs was practised over 120 years ago in Spain. I must say that when some years ago it was first practised I took the view, in an argument with our then President, Mr. P. L. Johnson, that it was not forcing, but was only a means of supplying more nourishment, much needed by the heavy producer during the short winter days. He took an entirely opposite view, and was firmly of opinion that it would be detrimental to the breeder. Events have proved that he was right and I was wrong.

LEG WEAKNESS.—IS IT DISEASE OR MERELY SYMPTOMATIC?

Several letters are to hand complaining of the losses through leg-weakness. One expects this with the early-hatched chicks, but it must be confessed that we have not yet definitely discovered the cause; undoubtedly in many cases it is only symptomatic. However, I am not discussing disease itself, but am content to leave that in more expert hands. Some years ago I drew attention to the ill-effect on chicks of massing under the hovers, suggested that this was a cause of many losses, particularly under the anthracite stoves, and suggested that it could be overcome by constructing a platform of slater's lathes nailed half-an-inch apart, which would permit a free supply of oxygen which the chicks could not obtain when the chicks slept on the floor of the brooder house. It was a clumsy suggestion at the best, although the principle was sound. Later Mr. Leschallas devised a perforated zinc bottom for the small oil stoves. This was tested by Dr. Baldwin, and proved a great success, the chicks being certainly healthier and developing better. Now I quote the following from a letter from Mr. Somerville:—

> "HATCHING."
>
> Last year, first hatch in January: Several cases of leg-weakness. Second hatch: Several more. Drilled holes in bottom of brooder and bedded loosely with hay. Third, fourth and fifth hatch: Immune from leg-weakness.
>
> This year put $\frac{3}{4}$in. mesh wire on bottom of brooder with loose hay bed. No case of leg-weakness in either of two hatches, and no loss from any cause. Is there anything in the idea, in your opinion? It was carefully reasoned out.

I ought to say to prevent any misapprehension that my own suggestion was not put forward as a preventive of leg-weakness. I was only thinking of the general health of the chicks, just as I have always advised early perching for the same reason. Now Mr. Somerville asks if I think there is anything in his idea. Most certainly I do. It appears to me a most valuable one, especially if we admit that leg-weakness in the majority of cases is only symptomatic of some other trouble. Would this idea in any way help us to contend with a trouble which is constantly referred to by Capt. Leeney in his post-mortem reports—I mean brooder pneumonia?

Turning to leg-weakness again, Mr. Hamnett told me of an interesting experience of his with regard to it. Some chicks he was attending had several suffering from this trouble. Quite accidentally he overturned a bucket of water under the hover. This effected a quite unexpected cure, and one which Mr. Hamnett has recommended to other breeders, who have used it with success. I don't mean to say they have tipped a pail of water under the hover, but they have seen that the atmosphere under the brooder has not been to dry.

DEAD-IN-SHELL.

I have had some 200 eggs sent me for examination from 15 different breeders which have failed to hatch. In only one of these cases could it be said that the fault was actually in the incubator. In this particular case, out of 12 eggs 11 had fully-developed chicks, the other was addled. The probable cause, one cannot say definitely, was an excess of moisture. In the others a large number of the germs had died about the fifth day, and a great number were clear. We have had some bad weather, and the male birds are less active in these bitterly cold winds; but in the majority of cases I think they are too immature, at any rate I would suggest that breeding pens are none the better when there is lack of shelter from the winds, and that there should be careful examination of unhatched eggs before the incubators are condemned, or the method of incubating changed.

A BIT ON HANDLING.

"I would like to meet the man or woman, smart enough, capable enough, to go into a large class of White Leghorn females, and by feeling of the bird, looking at the size, texture of comb, or in any way from general appearances, say which is number one, and which is number two from a production standpoint. It has been positively proven by many of the most eminent and recognised authorities using the trap-nest, that the pelvic bone test, and all of the rest of the so-called Hogan or any other system, is not accurate to any great degree. In other words, some 300 eggers will have a thick pelvic bone, while others the opposite, and this same thing applies to many or all of the other so-called requirements by which most of our utility classes are judged." (F. D. Rogers, President of the National Single Comb White Leghorn Club, in "American Poultry Advocate.")

I think this view will be endorsed by most of the practical men in this country, particularly in relation to the thick or thin pelvic bone. To hear some of our "handlers" talk you would think that some of our hens laid eggs with their pelvics. If they would only realise that a hen doesn't lay a lot of eggs because she has thin pelvics, but has thin pelvics, either because she began to lay at a very early age, or was the descendant of a line of layers, they might not be so dogmatic on this question of thin pelvics.

COUNCIL MEETING.

A meeting of the Council was held at the Memorial Hall, on Wednesday, February 13. The President, Mr. J. G. Kitson, was in the chair. Present: Mr. John Smart, Mr. P. Hedworth Foulkes, Mr. J. H. Dowden, Miss Maddison, Mr. E. J. Meekings, Mr. E. Bostock Smith, Mr. A. Harold Paine, Mr. Lester Spurgeon, and the Secretary.

The Secretary reported that 217 new members had been elected during January. This was a record for that month. He had visited the Keighley Branch, and lectured there, and had visited the laying test held on Mrs. Wilson's farm at Denholme. The Branch had a fast-increasing membership and an active committee. It was proposed to hold a show in November, and application was made for a challenge cup from the S.P.B.A. On the proposal of Mr. Bostock Smith, seconded by Mr. Meekings, it was agreed to grant a cup. The Secretary also visited Rochdale, and lectured to a large audience there.

"EGGS." The Chairman of the "Eggs" Committee congratulated the Council on the steady and continuous progress in the circulation and the healthy financial state of their journal, "Eggs." Following the policy of increasing the Editorial matter, as their financial status permitted, he compared this with the corresponding period of last year, and gave the following figures:—

EDITORIAL MATTER.

1923.		1924.	
Jan. 3	13 pages	Jan. 2	17 pages
,, 10	13 ,,	,, 9	18 ,,
,, 17	14 ,,	,, 16	17 ,,
,, 24	15 ,,	,, 23	23 ,,
,, 31	15 ,,	,, 30	18 ,,
Feb. 7	13¾ ,,	Feb. 6	24 ,,

The Treasurer's report was submitted. declared satisfactory, and adopted.

NATIONAL POULTRY COUNCIL. — It was announced that three resolutions would be submitted at the meeting of the N.P.C.: (*a*) Calling attention to egg powders which contained not a vestige of eggs. (*b*) To encourage the consumption of eggs. (*c*) To ask the Royal Agricultural Society to grant prizes to poultry-keepers, as they do to fruit growers and farmers.

INSPECTION AND REGISTRATION OF FARMS.—After a long discussion, it was decided that the Council should in the interest of unity in the industry waive its undoubted and unchallenged right to proceed with the scheme, and postpone it until such time as the joint committee should definitely make its application to the Ministry of Agriculture.

PURCHASE OF FOODSTUFFS FOR MEMBERS.—It was decided that the committee should hold its next meeting on March 12th.

A REQUEST.

Will Members when referring to previous correspondence, kindly return my reply, or be more explicit? I am dealing with something over 100 letters a day in my department alone, and my memory is not particularly good. Consequently it does not help when we get a letter like this:—

> "Referring to your reply and mine of October last, advice given was followed with satisfactory results. Shall I now increase the meat meal in the mash? Would a cockerel from C——— be a suitable mating for my birds?"

This kind of thing happens very frequently, and it only causes additional correspondence.

KEIGHLEY AND DISTRICT BRANCH.

The general meeting of the above branch will be held on Wednesday, March 5th, 1924, at 7.30 p.m., in the Temperance Hall, Keighley.

All members, and intending members, please attend.

H. CALVERT.

Modern Poultry Feeding.

By TOM NEWMAN.

A CONTEST FEED FORMULA.

The following is the formula to be used in the North American Egg Test next year:—

Dry Mash: 200lbs. bran, 100lbs. corn meal, 100lbs. ground oats, 100lbs. red dog flour, 100lbs. gluten, 40lbs. beef scrap, 40lbs. of fish scrap, 35lbs. of powdered milk.

Dry Grains: 60lbs. cracked corn, 60lbs. wheat, 40lbs. white oats, 20lbs. barley, 10lbs. Kaffir corn, 10lbs. coarse beef scraps.

Over here we should consider this as rather a forcing ration, and scarcely an economical one; without any desire to criticise, it would be interesting to have it explained. Why this combination of animal protein, and why this high percentage of it in the mash, and the addition of the meat scrap to the grain ration? I should be afraid to recommend such a ration, first on account of the cost, and secondly because I should think it so forcing, especially for highly fecund stock, as to be likely to cause thin-shelled and shell-less eggs, and broken eggs in the oviduct, even with my mash formula which contains only 6. per cent. animal protein (I am alluding to that which includes dried yeast). Occasional complaints, especially at this season, when the pullets are coming into full production, of these troubles come to hand, and it is necessary to advise that the quantity of mash fed should be reduced. Another complaint which should be included in the above is layer's cramp. In our English tests not more than 10 per cent. animal protein is used, and I do not think that they get better results in America.

I have so often written of the danger of underfeeding that I am afraid my readers will complain if I do so again; but it is so very common, and in quite 70 per cent. of the cases where bad results are obtained through mistakes in feeding, it is directly traceable either to a deficiency of fats in the food, an excess of fibrous matter, or to an actual insufficiency of food supplied. These latter cases are not very common, but still they turn up, and the first indication one gets is that the pullets have laid a few small eggs, and then stopped. The size of the egg itself is some indication of under-feeding. One must necessarily make allowance for a small egg strain, but when you receive a letter in which the writer tells you that his Black Leghorns are laying unsaleable eggs, and you know the farm from which they come, and that this particular strain lays a good-sized egg, you can safely say that the birds are underfed; for one must have a good sized yolk to make a good-sized egg, and if there is under-feeding, or a deficiency of fats in the food, then you are likely to get the small yolk and the small eggs. Again I would say that a bird may look in the pink of condition, and yet not lay, because she lacks the fats in the food which will enable her to make a start.

With regard to an excess of fibre, this is often indicated in the droppings, which may contain streaks of blood, or be inclined to be watery, and of a greenish colour. Should this symptom be exhibited, it would be well to reduce the bran or clover or alfalfa meal. Indications of an excess of animal protein are generally to be found in the yellow colour of the droppings. Some fowls contract the filthy habit of eating the droppings; this is due to digestive trouble, caused by an excess of fibre in the mash. Digestive trouble causes a depraved appetite, it has been found that when cotton seed has been fed, the poison, gossypool, which it contains will cause such a depraved appetite that the birds will eat sticks and all kinds of things which they would not do normally.

We have had many discussions as to the advisability of feeding salt to fowls. At Rochdale I was asked after the lecture, if I knew that salt was an avian poison—this in consequence of my advising the mineral salt mixture, which contains common salt, for breeding stock. I was, of course, aware of this fact, as so many examples have been given from time to time in "Eggs," but the quantity advised was quite safe. There will always be controversy as to whether it is necessary to feed it or not, and when you come to actual necessity I do not think that it is, but with highly fecund stock there is good reason to believe that there are times when it is highly beneficial, especially when there is a shortage of green food and production is heavy. It replaces the chlorin taken away in the egg, and also makes the mash more palatable. It has been found that when salt is withheld from cows in full milk that they develop an abnormal craving for it within two or three weeks, but their health was not affected for a much longer time when a complete breakdown occurred. Recovery has been rapid when salt has been supplied, but it should be added that recovery has been quite rapid when potassium salts have been supplied, as when they have been given the sodium salts, which indicates it is the chlorin and not the sodium which is lacking.

What a variety of foods arrive for an opinion to be expressed on them. During the past three weeks I have had dried egg yolk, dried bread crumbs, refuse from a fish canning factory, that smelt abominably, dried nettles, potato meal, refuse from beet sugar factories, dried flies, damaged tapioca, and some damaged raisins. The dried nettles and potato meal came from Switzerland. Two or three lots of beet refuse have been sent, but it has a high fibre and low protein content, and I do not think it will be a useful feed for poultry, although the price is low, so is the ash content for that matter. The dried nettles are excellent, and superior to either clover or alfalfa. The dried flies were too expensive, and would not have a greater value than fish or meat meal. The potato meal could have been used in place of any of the carbonaceous foods in the mash, but I would prefer maize meal or ground oats; as to the damaged raisins I can't say, and the fish—phew!

REGISTRATION OF POULTRY FARMS. SCHEME POSTPONED.

The Ministry of Agriculture and Fisheries announces that the scheme for the inspection by the Ministry of the farms of poultry breeders desiring inclusion in the Register of Breeders, administered by the Scientific Poultry Breeders' Association, which was arranged to commence as from the 1st January last, is postponed. This decision is due to the fact that the Poultry Club and the National Utility Poultry Society, having conferred with the S.P.B.A., as previously suggested by the Ministry, decided on the 13th instant to form a Joint Registration Committee representative of the three societies, with the object of initiating a Registration Scheme open to all Poultry Societies. The S.P.B.A., therefore, from considerations of goodwill towards the other Societies, has decided to postpone putting into operation its own scheme of Registration in the meantime, and has informed the Ministry to that effect.

Ministry of Agriculture,
10, Whitehall Place, S.W.1.
18th February, 1924.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package. and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor.. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

M. H. (Herne Hill). The sample of middlings is not a good one. It is not good enough to use for poultry feeding. The fish meal appears all right, but I would get a guarantee that the salt content does not exceed four per cent. I cannot tell, without an analysis, if this is right. The bran is only moderate, and very dear at 12s. 6d. The ground oats are not a particularly good sample, but are fair value at the money. The chick feed is a nice, clean sample. The special middlings are good, much better than the previous sample, and worth the additional money. The wheat is a nice, clean sample, and good value at the money. The maize is very good, but it would be better if more finely kibbled. The meat meal is a moderately good sample, but dear at the money. The oats are good, and the maize meal is also good. Please do not use so much cotton to tie up your samples in future. It has taken me a considerable time to undo them.

C. H. D. (Carbrook). I am afraid I cannot express an opinion on the blood salt. Generally speaking I am not a lover of the use of these things. Healthy birds require nothing of the kind, and there are a good many things which are made to sell and not to use. I would advise you not to use it unless you know more about it than I do, and not rely upon too much faith in advertisements. As it is a blood salt, it would not make much difference as to whether it was given to light or heavy breeds.

L. W. (Keighley). A better and more economical mash than the one you are using would be to increase the middlings to 40 parts, and please note I am referring to *middlings*, and not sharps—fine white middlings. Reduce the Sussex ground oats to 10 parts, and replace the gluten feed with maize meal. The best method of stopping egg-eating is to nail a piece of dark cloth across the front of the nest, slit this up the middle, so that the bird can get in and out of the nest easily without seeing the eggs, and place a few china eggs on the floor near the nest, and they will peck at these and feel rather discouraged.

S. D. H. (East Ham). As your birds are ravenously hungry, the obvious conclusion is that you are under-feeding, and you are quite right when you say they are not over-fed. I do not know of what your house scraps consist, but perhaps it would be better if you did not dry them off with bran, but used simply middlings, as I suspect myself they contain vegetable parings with a little meat, and perhaps they have not sufficient body in them to give the required amount of food.

N. J. H. (Middlesex). Two of the samples of bran you send cannot, by any stretch of imagination, be called *broad* bran. The third sample is just fair; I should like to see something better. The middlings No. 2 is the better sample of the two, but it is none too good. The No. 2 sample of dried yeast is the better of the two. The maize meal No. 1 is by far the better; the other looks more like maize offals finely ground.

E. B. (The Curragh). We can only reply to members of the S.P.B.A. by post. With regard to the marking of pedigree chicks, the only satisfactory way of doing this is by toe-punching; by this means you can make 16 different identification marks. Most appliance makers will supply toe-punches; you make a clean hole through the web of the foot. It will be advisable to renew this in a few days, otherwise in many cases it will fill in. You can also use numbered or coloured rings, but these are apt to be lost, and in any case they want renewing as the chick develops. Thanks for your appreciation of "Eggs."

G. C. (Maple Bridge). I cannot tell you of any cross with Rhode Island Red pullets which will give you chicks of which you can tell the sex at hatching, the reverse cross will enable you to do so. Red cockerels to White Wyandotte pullets will give silver cockerels and red pullets.

Worried (Falmouth). The incubator is not at fault. I have carefully examined the eggs, and the real cause of the trouble is the male bird; eight of the eggs were addled, two clear, one had a chick in it, which had died on the 15th day, and the other one had died on the 19th day. The male is too immature to breed with; you should remove him at once, and get another February-hatched bird. (2) Eggs have been found to be fertile 19 days after the male has been removed from the pen, but this is an extreme case, and you will be safe in ten days as a rule. (3) Yes, I did say that sharp flint grit was valueless to fowls, and likely to cause more harm than good, and that I did not believe grit acted as the teeth of the fowl, and gave my reasons. One of these days, when I have time, I will endeavour to comply with your request, and explain in these columns.

L. F. (Sowerby). There appears to be only one pullet which is laying these thin-shelled eggs, therefore it would be unwise to change the feeding of the whole flock on her account; the probability is that she is one of your best layers, and the mash is a little too stimulating for her when in full production. I should try and discover her, and keep her off mash feeding for a few days. (2) This male is only a cross bred, and it will be a mistake to use him in your breeding pen; he is only fit for the pot, and no good could come of mating him to your Wyandotte pullets, however handsome he may be.

C. H. (Stockport). As your house is only 8ft. deep you will not need back ventilation, but if you are making it 24ft. in length, you will have to have screens across it every 10ft., otherwise you will get the wind travelling from one corner right down to the perches, and this will mean roup. You are one of the many who have scrapped all other poultry papers for "Eggs." We get several such letters every day.

POST-MORTEMS.

V. L. There was a long-dead fully-shelled and broken egg lying free in the abdomen, which had come through a rift in the uterus, and, judging from its colour and decomposition produced from a previous clutch, as the ovarium was in a state of retrogression, no ovum being larger than a millet seed. May I say that your method of sending a subject without a word of information is neither helpful to yourself, to the examiner, nor the readers for whose (supposed) benefit these reports are published. It should be understood that with all available information afforded, there are still many cases that present diagnostic difficulties, and that I am not vastly superior to a coroner with power to call witnesses and postpone inquests while costly analyses are being made. All this (including my caustic comments) for 2/6. Walk up. Next, please!

T. J. M. The Wyandotte hen had the bowels all tied up in a bunch (peritonitis) caused by blocking of the egg tube with a collapsed egg, and overflow of the yolks following behind and unable to get into the passage. Heavy birds on short legs, like this one, are more liable to accidents of the kind than others in alighting from the perch.

Gen. G. Dissection of the skin of the neck failed to reveal any wound or large vessel from which the blood had come, but on opening the body it was found that many points of haemorrhage occurred throughout the viscera. Fowl cholera shows similar lesions, but the bird quickly dies; or else becomes a chronic. I should regard this case as one of pupura haemorrhagica, having seen two previously like it, but am not supported by any authority in the avine pathological world. It is a disease familiar to veterinary surgeons in the horse and other species, but not fowls. Three grain doses of chlorate of potash twice daily might be tried. Hyposulphite of soda has also some repute in this connection. Isolate and disinfect. The disease is "wropt in mystery," and the latest text book (Professor Wooldridge's Encyclopaedia) says "the true exciting cause (in the horse) is unknown." Inoculation does not reproduce the disease. There is not much help in this reply, I fear, but there is good reason to try the old remedies mentioned above, because the practice comes first, and the scientific endorsement later; as with cod liver oil. It was associated with other unpleasant substances since abandoned, but we now know that it is one of the richest in vitamins.

G. H. S. Pneumonia in both cases. (2) Yes, revert to Mother Earth. Wooden floors are now generally regarded as contributing to leg-weakness.

R.I.C., Derry. This chick was chilled, and there was pneumonia and inflammation of all the abdominal organs as well. Such accidents may be expected in the weather we have been having, but the worst of it is that an accidental case offers a seed bed for the infectious variety, and others develop it; just as roup follows simple catarrh, the germs being ever present. They are unable to enter the most robust, but in a hatch of only 40 per cent., we may surmise poor constitutions and great susceptibility to disease.

V. O. G. Pneumonia of the kind that low temperatures or foul air produces; but it is always liable to take on an infectious character, and it is best to treat it as such from the beginning. I prefer to have more than one, for comparison, as some very young chicks die with symptoms hardly developed enough to pronounce upon, while others show clearly.

J. H. W. The White Wyandotte pullet had a heart twice the normal size, a fatty degeneration of the liver, and all the organs loaded and oppressed with fat.

E. C. of L. The chicks had that form of pneumonia due to infection with the spores of a fungus (Aspergillus fumigatus chiefly), and producing solid tubercles in the lungs. In one of these it was very large.

H. LEENEY.

DISEASES OF POULTRY.

By Capt. H. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

GOUT.

To the uninitiated the idea of fowls having gout seems at first ludicrous. To the owner of a valuable stock bird it is quite otherwise. What is more natural than that the overfed should suffer from those diseases whose origin is an unbalanced metabolism? The makers of salines, with proprietory names, have done much to educate the public as to the nature of gout by real scientific explanations, still more scientifically blended with recommendations of their goods, and with such outrageous pretensions that the advertiser's purpose is served if but one per cent. of it is believed.

The importance of a balanced ration is forcibly brought home to some poultry-keepers by the loss of birds without any apparent reason. Some show the cause plainly enough, while others merely waste away and are dismissed as cases of "going light."

Kidney diseases are very common in fowls, the organs being often much enlarged, sometimes containing cysts or abscesses, the uriniferous tubes blocked with urine which is at all times of a very thick nature, but easily becomes too solid to pass down them, when they appear to be mottled grey and more or less resistant to the knife.

The under-sized pullet is often the victim of early disease of the kidney. An excess of proteids is the most common cause of disease, which results in different ways in failure to eliminate waste by the chief emunctories, the kidneys. There is failure to eliminate the urates, uric acid in the blood becomes excessive, and deposits of urates of sodium take place on the surface of the organs of the chest as well as abdomen or in and around the joints.

The above is a rough summary of the conditions, but for further particulars see advertisements in papers with a circulation among the well-to-do, and such as succumb to the pleasures of the table.

Gout in fowls may be divided, as in man, into visceral and articular, depending upon the deposition of the urates either in or upon the chest membranes, the heart, liver, etc., or taking the form of enlarged joints, such as turkey rearers are so familiar with in birds hatched late in the season, and apparently suffering from the absence of some sort of natural food or vitamins which they find earlier, possibly in insect form, with the vitamin "C" or antiscorbutic property.

In the visceral form of gout a yellow tinge of the head ornaments may be present, and is usually mistaken for a liver trouble, but in the majority this symptom is not present, and appetite remains good. Death is sudden, and poison suspected.

Post-mortem examination of these light-weight birds reveals the true cause as gout. On laying open the body the inside looks exactly as if one had taken a flour dredger and dusted evenly over the moist surface, leaving an evenly-distributed paste on the membranes, particularly of the heart and liver. It is not so much like chalk as like talcum powder, with a lustre due to the fact that it consists of very minute crystals, which any of our chemically-minded readers may test with but very little apparatus, if they will dissolve some scrapings of the material in dilute nitric acid and evaporate by means of a spirit lamp, using a watch glass or porcelain dish. The immediate effect of the nitric acid is to turn it a bright red, and if a few drops of liquor potassae are added, a purplish blue colour is produced. These crystals of urate of sodium give the semi-solid urine in the tubules the appearance of being frozen or crystallised, and the flow from the branches into the main stream is dammed, and the whole drainage system stands out in bold relief and is unmistakeable when once seen.

It has been said above that death is sudden and that poison is suspected. It **is** poison. It is an auto-intoxication which acts on the nerve centres, and through them as a heart paralysant.

The second form, which we have named articular, is accompanied by swelling, more particularly of the hock joint, but frequently of the stifle or patella, and not rarely the cup and ball joint of the hip. When it falls in the feet, it is confused with bumble foot and attributed to injuries or any cause other than the real one. Lameness is the first symptom usually observed, or an indisposition to move about. After death, if the affected joints are laid open, there will be found mixed matter, partly pus and partly crystals of urate of sodium, which will be proved by the test above-mentioned. Nor does one always have to wait for a post-mortem examination, as the little nodes commonly present sometimes break and discharge matter of a stringey character, and bring about the end by admitting air into the joint itself—"open joint," as it is known in horses and other animals.

Diarrhoea is not infrequently seen before the final collapse and death, but it is not in any sense diagnostic of the disease. It is more often mistaken for rheumatism when not affecting the feet. This does not greatly matter, as much the same internal treatment is needed, rheumatism being sister to gout and also due to failure in eliminating waste products, whether this failure is due to inheritance or acquired by an excessive amount of proteins in the food.

As proof of the latter, birds have been experimentally fed on meat and produced gout. According to an American authority beef liver brings about gout quicker than any other food.

Treatment.—Of the chronic it is useless. Of the early recognised it is hopeful. Readers who have honoured me by perusal of my notes in "Eggs" will have frequently seen fasting recommended. I wish I could fully impress them with the very great value of an occasional fast. It lowers the dangerous tension in creatures with naturally high temperatures, empties the digestive canal, restores the balance between the anabolic and catabolic functions; or, to put it another way, it leads to a tissue-hunger, which results in calling up and carrying away accumulations of waste material. Prepared by a 24 hours' fast, the salicylates of sodium and other remedies will have double the effect than if given to a loaded-up subject.

A grain or two of calomel may be given by way of a start, then two to five grains of a salicylate of sodium dissolved in water and given at night; changed in a few days for five to fifteen grains of sulphate of sodium each morning in food. Manipulation of joints, flexing and extending them will be worth while in a bird of value whose services to the flock are much desired, and the inunction of camphorated oil is recommended rather than any of the more stimulating "oils" favoured in the stable and the byre. There is a fair prospect of recovery if gout is early recognised and depletive measures taken as above indicated.

EAST ANGLIAN EGG-LAYING TEST, 1923-24.

(Open to Great Britain.)

Report for fourth month, 9th January to 5th February, 1924.

The leading pens at the end of the fourth month of the above Test, which is organised by the North Essex Branch of the N.U.P.S., are as follows:—

SECTION 1.—WHITE LEGHORNS.

Position.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	Birmingham Industrials Co.-Operative Soc., Ltd., P.F.	225	217
2.	Clayton, J. W.	326	206
3.	Dale Egg Farm	202	183

SECTION 2.—ANY OTHER NON-SITTING BREED.

Position.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	Lloyd George (Ancona)	160	156
2.	Fearon, E. (Black Leghorn)	206	154
3.	Reed, Dr. R. B. (Ancona)	211	146

SECTION 3.—WHITE WYANDOTTES.

Position.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	Greenall, S. & T.	258	252
2.	Crabtree, W.	282	243
3.	Gawthropp, A.	226	225

SECTION 4.—RHODE ISLAND REDS.

Position.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	Fearon, E.	190	176
2.	Turner, H.	213	170
3.	Stewart and Allen	160	160

SECTION 5.—ANY OTHER SITTING BREED.

Position.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	Smith, A., Alborough (Light Sussex)	208	207
2.	Thornlea P.F. (Light Sussex)	195	195
3.	Montgomerie F.D. (Buff Rocks)	150	150

SECTION 6.—ANY VARIETY LIGHT BREED (Amateur).

Position.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	Aitchison, T. H. (White Leghorn)	64	61
2.	Farrant, H. (White Leghorn)	79	49
3.	Jackson, Miss R. M. (Noire du Berry)	25	25

SECTION 7.—ANY VARIETY HEAVY BREED (Amateur).

Position.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	Atkins, Mrs. W. F. (R.I.R.)	132	132
2.	Atkins, Mrs. W. F. (W.W)	85	85
3.	Shenton, G. (W.W.)	81	81

(Five pullets comprise a pen in Section 1-5. Two pullets Section 6 and 7.)

W. F. WILLIAMS, Hon. Sec.
"Millfields," Rayne, Essex.

ST. DUNSTAN'S WINTER LAYING TEST.

RESULTS OF THE LEADING PENS TO END OF FOURTH PERIOD.

HEAVY BREEDS.

Pos.	Owner and Breed	Total Eggs to date.	Test Value.
1.	J. Fowler (R.I.R.)	283	283
2.	A. Griffen (W.W.)	245	245
3.	F. Crabtree (W.W.)	239	239
4.	A. E. Trigg (R.I.R.)	209	207
5.	T. D. Stamper (W.W.)	235	206
6.	Mr. McLeod Steele (R.I.R.)	188	188

LIGHT BREEDS.

Pos.	Owner and Breed.	Total Eggs to date.	Test Value.
1.	Mr. C. Bulman (W.L.)	271	271
2.	Mr. N. Ramsden (W.L.)	248	248
3.	A. Pink (W.L.)	226	226
4.	A. Coulson (W.L.)	228	225
5.	C. McIntosh (W.L.)	232	195
6.	W. Burgin (W.L.)	225	182

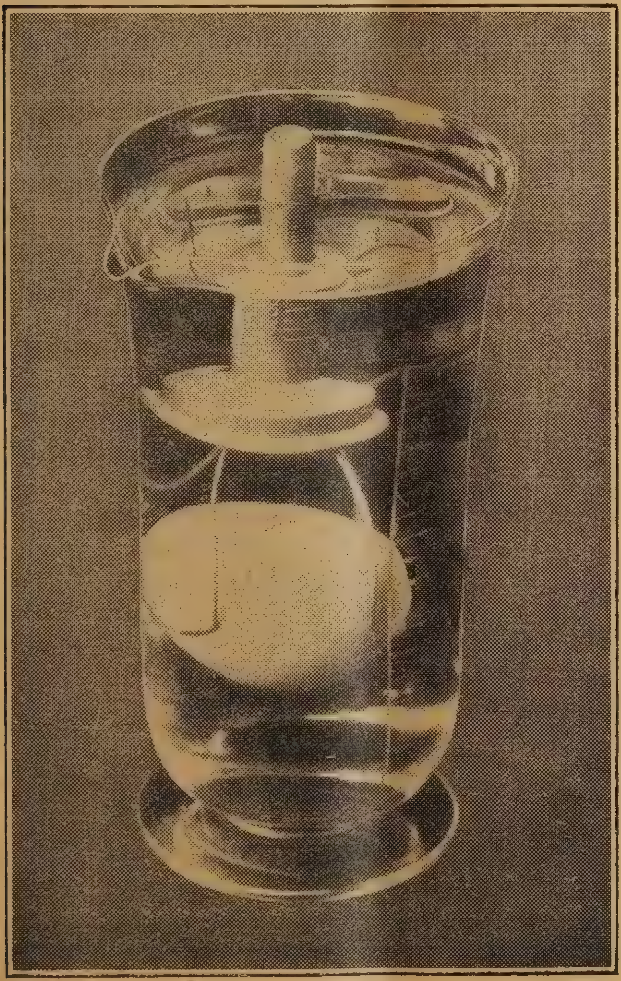
THE "EGGOMETER."

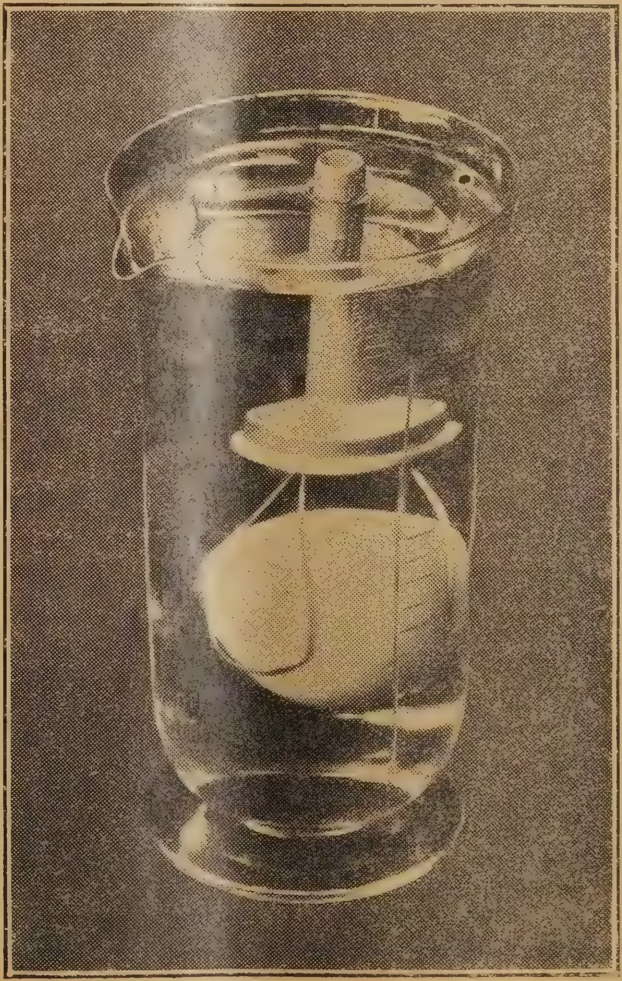
In a recent issue of "Eggs" mention was made of the "Eggometer," a clever little scientific instrument which will tell at a glance the specific gravity of the egg tested.

Let there be no mistake. This is not an attempt to impose on the public by pandering to their gullibility, and foisting on them such preposterous frauds as the instruments which are supposed to *foretell* the sex of the egg, which were exposed many times in "Eggs" before actual official tests made in the States demonstrated that the claims made were pure humbug.

It is claimed that the mass density of the egg will tell at once the condition of the hen which laid it. A hen in the pink of condition will lay one of greater density than one which is not, and this reflects itself in the hatchability of the egg and the vigour of the chick. It should also be some indication as to the nutritive requirement of the hen, for it has been demonstrated that the fat content of the egg becomes lower as greater numbers are produced, but just as the fat content of milk varies with the individual so we find that the fat content of the yolk of the egg will also vary with different hens; and it is not suggested that it is wholly a matter of nutrition. The age of the egg will influence the weight. We have made no test of this instrument ourselves, but we believe it will prove of great interest to our readers.

The accompanying photographs illustrate the difference in the specific gravity of two eggs of equal size, and laid on the same day.





Which Breed for the Small Man?

By "Ex-AIRMAN."

In a recent issue of "Eggs" Mr. Richards asked: "Which breed is best for the small man?"

I have just concluded a test on our heavy cold clay land here. I have been a poultry-keeper for over 30 years now, and when I came back from the War I turned to poultry to help me to secure a living, and with success. I will take Mr. Richard's first query *re* fruit trees, and I can help him. Plant your chick-rearing runs with gooseberry and black-currant trees, which will shelter your early hatched chicks from the winds, and will be fertilized by the chicks- droppings—not so strong as the hen's manure. As these runs would be used by the January and February hatched chicks, these birds would be off the ground before the gooseberries and currants had fruited sufficiently to tempt the chicks' palates. I have planted my late-hatched (March-April) chick runs with half-standard apple trees of the best sorts—now some ten years old, and for some three seasons now I have paid all my rates and taxes out of my apple sales, while my gooseberries and currants have all contributed to my humble balance-sheets.

Now for my experience with heavies and lights. In 1919-20 I started with some 36 White Leghorn pullets, hatched and bred by myself from excellent record Padman-Barron stock, and they *commenced* to lay in the second week of November, 1920, and laid well into the first week in January, when they all went into a moult, and did not resume till nearly the third week in March—when eggs were getting very cheap. They were all fed on Mr. Newman's formulas, than which, I am convinced, there is no better system. When I made out my flock average for 1920-21 from these birds I found that it was nothing to shout about, 169.5. As these birds were well fed and housed on modern principles, I was not satisfied. I, therefore, sent for a cockerel of undoubted pedigree (F. Snowden's strain), and supplied in grand condition. He mated well with my selected hens—*I never breed from pullets*—and pulled up the average to 179.1, for 1922-23. This was not satisfactory, because the bulk of these eggs were to hand *when prices were low*, although the pullets were hatched from March 21st to April 12th, the last batch being out on the latter date. Every change of climatic conditions seemed to affect them, and, therefore, also very susceptible to fright—a cat or dog's visit was a serious affair. Early this last season (February, 1923) I culled out a lot of these Leghorns, and sent them to market, getting 3s. 3d. each in London—not a very high figure. Of that more anon. Having culled out this lot of Leghorns, on Mr. Newman's advice, I sent to Dr. Baldwin for some of his best Rhode Island Red eggs, and to Major Eden for some Light Sussex. These eggs were all set on February 5th, and when hatching time came I had 101 fine chicks out of 108 eggs—a remarkable hatch, and one which goes to show the virility of the early germs. I have never had so fine a hatch in an incubator before. These chicks were put into an anthracite stove-heated house, and, despite awful weather, I reared no less than 96, the five casualties being the result of an accident in which they were crushed. Fed on Mr. Newman's formulas, they thrived well, and I took care to bring the pullets (16 Sussex and 21 Reds I kept back for myself after selling others) along slowly and naturally, and right well have they responded. They all started laying about the same time—i.e., August 30th to September 10th, and I have been getting splendid supplies of eggs right up to to-day, and only four Sussex have gone broody, and only one Sussex and two Reds have neck-moulted. One Sussex pullet laid 28 eggs in 34 days, and four Reds have averaged 23 eggs in 30 days. As I keep these birds in pens of eight and ten birds each, my records are the more easily checked. The whole 37 are now in lay, and for some weeks now I have been picking up 20 eggs and over each day—some consideration with prices ranging from 3d. to 4¼d. each. These birds have given me eggs just when my clients most wanted them, *and I most wanted saleable eggs*. None of these pullets has laid an egg under 1⅞oz. in weight, and some have gone seven to the pound. I only wish I had entered one pen of Reds in the National Laying Test, as they would have got well away.

Now as to the cockerels. I had 32 of these gentlemen, and early in May a dealer here begged me to let him have all I didn't want for stock, and I culled him some 26 head, only keeping quite the smartest and best. I made 16s. 6d. a couple of these, delivered alive. My wretched Leghorn cockerels had previously brought me only 5s. a brace. This is a big difference to a small man. Yet another point is this: The lovely tinted Sussex and dark brown Red's eggs command such a good-class trade—the best in face. Then take the culls, at the end of the first season's laying. The heavies weigh in well, and get top old-hen prices for the Jews' feast in London. All these things tell a tale in one's balance sheet. Look at the average (202.0) of the Light Sussex in the Lancashire Laying Test, just published in the "N.P.J." To my mind the early-hatched steadily-grown "Sussex" or Red Pullet of really first-class utility pedigree will whack the head off the Leghorns for Winter and Autumn egg production on heavy and wet soils especially. I have never coddled my birds. I believe a small plant such as Mr. Richards wants to lay down, carrying two-thirds Reds and Light Sussex, and *one-third* only of White Leghorns, would show a really good paying profit.

Trusting Mr. Richards will succeed.

LECTURE TO WADHURST BRANCH OF S.P.B.A.

By Dr. ROSEDALE.

THE NEWER KNOWLEDGE OF NUTRITION.

If you had gone to an Agricultural College ten years ago you would have been taught to analyse foods in the Chemical Laboratory in the same way as we do nowadays. You would have been taught to have expressed your results per cent. in terms of moisture, protein, fat, fibre; ash, and deducted all these from 100, putting down the difference as carbohydrate. It would then have been explained to you that the whole amounts of these substances were not digestible, and you would, no doubt, have met with the digestibility tables of Kellner, giving the so-called digestibility coefficients. I need not trouble you with a discusion as to why such figures must necessarily be inaccurate. In the light of the knowledge of nutrition in the early part of the present century they were the "last word" on the subject, and I think helped the development of the study of the subject a good deal at that time.

Since then our knowledge has greatly increased, and I want to spend a little time in telling you how it—in part, at least—came about. The main reason for further discovery was the need of the time—"Necessity is the Mother of Invention." Prices of foodstuffs began to rise, especially with regard to such foods as mainly provided Protein-Animal Products especially. The Physiology of Fat and Carbohydrate in the animal was known, but Protein, the most expensive ingredient of the diet, is a very complicated substance, and was very little understood. Though nowadays we know a little more about it from all points of view, it still holds a field only partially discovered. The result was that experimental skill was directed to the subject of Protein. The greatest protein chemist, Emil Fischer, had made wonderful progress with the chemical constitution of Protein, and now others were beginning to investigate from the standpoint of feeding. Their problem was surely how little or how much Protein need we supply to the animal, and what Proteins would be satisfactory and unsatisfactory to feed, because Fischer had shown distinct chemical differences in different Proteins.

If we want to get accurate results in Nutrition Research, we have to use very simple diets. All that was known then, was that you must supply fat, carbohydrate, ash and Protein. Milk was known to be a good food, so that it was taken as the basis. The ash of milk was used, the carbohydrates of milk was used (milk sugar) and butter fat was used, and then any desired Protein could be added, all in the proportion that is found in milk. Later for some reason, some such fat as lard and olive oil was used, and at once the animals began to get ill and rickety, and died. If the butter fat was replaced in time, the rickets got cured, and the life of the animal became normal. Cod Liver Oil was found to have the same effect as butter fat. It was obvious that there was something in cod liver oil and butter fat that lard and olive oil had not got. Chemical analysis could not detect anything. McCollum called the unknown substance *Fat Soluble A.*, and having gained this important knowledge returned to work on the important subject of Protein once more. As I said before, it was of the utmost importance to use a simple diet. McCollum attempted to purify the milk sugar still further, with the object of eliminating any unwanted Protein supply. When he did so, his animals began again to die. If he used the unpurified sugar they lived, if he used the material he had extracted from the sugar when he purified it, they also lived. Chemical analysis again failed to throw any light on the subject; undoubtedly there was some substance there that was essential. It was nothing to do with mineral salts, for McCollum had already supplied plenty of the mineral salts of milk. He called this substance *Water Soluble B.*

Thus I think that you will agree that there are undoubtedly two unknown substances that are essential in Nutrition. We generally call them Vitamines. There is also a third one, *Water Soluble C.*, but my colleague, Professor Plimmer, and I have proved that only the *A. and B.* are necessary for birds.

Now I want to try and explain a little about Protein. It is, as I said, a very complicated substance, but I want to make it as clear as I can. Protein is built up of about 18 different kinds of substances which chemists call *Amino Acids*, but you and I, like the greatest Protein chemist, Fischer, will call them Bricks. Each Protein is different. The numbers of each kind of brick varies. We may find that in some Proteins certain kinds of bricks are in the majority, while in other Proteins some of the kinds are missing altogether. Supposing now we want to build up Chicken Protein. We must supply the necessary bricks that go to make Chicken Protein in the right proportion. Maize Gluten, for instance, lacks three kinds of the bricks that are present in chicken, so that chickens fed on Maize, without any other source of Protein, could not grow. If we added some Wheat we should in part supply the missing bricks, but still, in order to supply enough Protein of the right constitution, we shall have to put up with a great waste of Protein, because, for instance, both Maize and Wheat contain about double of a certain kind of brick called Glutamic Acid, to what is found in the Chicken.

Thus, from the Protein standpoint, the excess of such Protein is waste, and it may be claimed that one object, at least, of nutrition research is to prevent waste of the foodstuffs which the poultry-keeper has to buy.

WEST SURREY POULTRY SOCIETY.

WINTER LAYING TEST, 1923.

MANAGERS' REPORT AND SCHEDULE OF RESULTS.

The Test terminated on February 3rd, and all birds were cleared by February 5th, with exceptions mentioned later. The laying of the birds has been very satisfactory taken as a whole. The total number of eggs recorded was 4,506 during the 112 days of the test, being an average of 53 per bird. Heavy breeds averaged 55.5 eggs, light breeds 48.5.

The laying of the leading pens compares very favourably if it does not actually excel that in some of the big laying contests, where birds are entered by prominent breeders. The eggs laid each period were: 1st, 1008; 2nd, 1,090; 3rd, 1,279; 4th, 1,129.

Cards showing the final results were in the hands of all competitors within 48 hours of the close of the test.

The last month was the worst experienced for weather, there being continuous rain, which led to a slight drop in the egg yield. The health of the birds throughout has been good, though anxiety was caused early in the last month by two birds developing Avian Diphtheria. Fortunately one of the birds affected had been isolated before the symptoms showed, as it had been noticed moping about. The other bird was from a pen which had colds earlier in the test, and had since been kept in a separate house from the other Wyandottes. Every precaution was taken, all the birds in the test being given two injections of Vaccine; and no further cases were found, although the birds were frequently examined.

One other bird, a R.I.R., which had moulted, was found going light the last few days of the test.

The two birds first mentioned were retained after the close of the test to avoid infection; one is now clear, and the other much better.

There are several interesting points about the final positions. Mr. Ezzard had very hard luck, three birds falling into a moult in the last month. Mr. Rowntree's leading pen won second position with three birds laying, as one bird laid only six eggs at the start of the test. Mrs. Harding's pen and Mr. Turner's tied for ninth position, each pen laying 35 first-grade eggs in the first six weeks.

In the light breeds Mrs. Harding obtained second position with three birds, one bird not laying a single egg, though it handled well.

As will be seen from the reports, several pens lost ground by laying too many small eggs and others by moulting. Competitors in Laying Contests, especially Winter Tests, are almost sure to lose ground by entering birds already in lay, the move and change of conditions frequently causing a moult.

The competition, which has been very interesting, is also of great value to members who own Poultry Farms, and it is hoped that the Society will be able to hold such a test next winter.

The Managers have been very pleased with the results of the test, and the laying of the birds, and wish to thank members for entering such good birds, both as regards laying and breed characteristics. They hope that members on their part are satisfied with the way their birds have been cared for. It was unfortunate that the winter has been such a bad one, as this made the labour of trap-nesting at times very arduous, and necessitated the birds being confined to their houses a good deal; otherwise egg records might have been even better. Competitors who wish may see the score book on application to the Secretary.

For H. G. Hood and Sons, Managers,
FRANK P. HOOD.

SCHEDULE OF RESULTS.

CLASS I.—HEAVY BREEDS (Four Pullets).

Pos.	Owner and Breed.	Test Score.
1.	Kirsch and Jeffery (R.I.R.)	328
2.	Herbert Rowntree (W.W.)	266
3.	W. Ezzard (R.I.R.)	263
4.	Herbert Rowntree (W.W.)	255
5.	F. and H. Barton (R.I.R.)	233
6.	Kirsch and Jeffery (R.I.R.)	224

BEST BIRD, CLASS I.—H. Rowntree (W.W.), No. 131: 92 First-Grade Eggs.

CLASS II.—LIGHT BREEDS (Four Pullets).

Pos.	Owner and Breed.	Test Score.
1.	F. C. and S. A. Thorn (B.L.)	251
2.	Hudson Bros. (W.L.)	209
3.	C. R. Harding (W.L.)	200
4.	Kirsch and Jeffery (W.L.)	194
5.	Hudson Bros. (W.L.)	180
6.	E. Store and Sons (W.L.)	125

BEST BIRD, CLASS 2.—F. C. and S. A. Thorn, (B.L.), No. 264: 84 Eggs, 83 First-Grade.

CLASS III.—SINGLE BIRDS.

Pos.	Owner and Breed.	Test Score.
1.	A. E. Stanton (R.I.R.)	68
2.	F. and H. Barton (B.L.)	53
3.	—. Saul (W.W.)	52
4.	—. Saul (W.L.)	51
5.	A. E. Stanton (R.I.R.)	39
6.	A. E. Stanton (R.I.R.)	32

EGG-LAYING TEST.

THE GLOUCESTERSHIRE REPORT.

CONTINUED INCREASED YIELD.

The following is the report on the Gloucestershire Laying Test (under the supervision of Mr. L. G. Price, County Instructor in Poultry Keeping) for the fourth month, ended January 25th.

The steadily-increased egg yield previously reported has been continued, 3,893 eggs having been collected, against 3,771 the previous month, giving a total of 14,411 pullet eggs for the four months and an average to date of 47.4 per bird.

From and including this month until the last twelve weeks of the Test, Grade A. eggs (2 ozs. or over) score 4 points, and Grade B. eggs (1¾ ozs. but under 2 ozs.) score 3 points. Grade C. eggs are recorded, but no points awarded.

The health of the flock is good.

SECTION A.—LIGHT BREED (Professional).
(Five birds constitute a Pen).

Owner.	Points Awarded.
G. B. Metcalfe	1650
Major J. G Dugdale	1442
H. T. Godber	1405
Coaley P.F., Ltd.	1375
Hinton P.F.	1373
J. L. Brown	1369
Miss H. Baylis	1331
Sherborne Park P.F.	1218
J. G. Herbert	1172
R. Gray	1148

All White Leghorns.

SECTION A.—HEAVY BREED (Professional).

Owner and Breed.	Points Awarded.
P. S. Beales (W.W.)	1650
T. L. Davies (W.W.)	1531
P. M. Hinton (W.W.)	1463
W. R. Partridge (W.W.)	1428
H. W. Fowles (W.W.)	1368
G. H. H. Simmons (W.W.)	1345
W. O. Garbutt (W.W.)	1142
G. B. Metcalfe (R.I.R.)	1120
J. Loder (W.W.)	1115
W. R. Partridge (Barnevelder)	1027
Major G. Dugdale (L.S.)	985

SECTION B.—LIGHT BREED.

Confined to owners of not more than 50 laying head.

Owner.	Points Awarded.
Mrs. S. A. Brown	1191
K. Wilson	940
*Mrs. D. Japp (B.L.)	938

All White Leghorns except position *

SECTION B.—HEAVY BREED.

Confined to owners of not more than 50 laying head.

Owner and Breed.	Points Awarded.
Maisemore School (W.W.)	1369
L. Grist (W.W.)	1351
Miss M. Lawrence (R.I.R.)	904

SINGLE PEN SECTION.

Section 1.—White Leghorns.

Owner.	Points Awarded.
Major J. G. Dugdale	450
Misses Ransford (12)	359
L. Grist	345
Misses Ransford (2)	343
J. E. Boyd	314
Sherborne Park P.F. (8)	302
Misses Ransford (5)	251
J. L. Brown	242

SECTION 2.—WHITE WYANDOTTE.

Owner.	Points Awarded.
Lord Sherborne	444
Phillip Clapham	438
W. O. Garbutt (21)	405
W. R. Partridge (18)	404
Miss H. Baylis	389
W. R. Partridge (23)	386
W. O. Garbutt (25)	348
G. B. Metcalfe	329

SECTION 3.—RHODE ISLAND RED.

Owner.	Points Awarded.
F. W. Clifford	393
Miss H. Reed	344
A. Daunton (32)	296
Miss M. Lawrence	293
A. Daunton (44)	261
J. N. Horne	245

SECTION 4.—A.O.V. HEAVY BREED.

Owner and Breed.	Points Awarded.
G. B. Metcalfe (B.L.)	352
H. S. Hitch (Ancona)	306
A. Daunton (Ancona)	294
H. L. Lemon (Black La Bresse)	267
M. A. Greenway (B.L.)	174
L. Grist (Ancona)	167

SECTION 5.—A.O.V. HEAVY BREED.

Owner and Breed.	Points Awarded.
Major J. G. Dugdale (Breed L.S.)	463
Miss M. Lawrence (Barnevelder)	343
J. L. Brown (L.S.)	338
Mrs. E. Weinholt (Aus. Orp.)	324
F. R. Welch (L.S.)	300
Miss H. Reed (L.S.)	265

SECTION 6.—DUCKS.

Owner and Breed.	Test Score.
Mrs. A. Jupp (W.R.)	66
Mrs. E. Weinholt (K.-C.)	64
Major J. G. Dugdale (K.-C.)	63
W. R. Partridge (8) (W.R.)	53
J. N. Horne (W.R.)	53

PEN DUCK SECTION.—(Four ducks to the pen).

Report for the third month ending January 11th, 1924:—

Owner and Breed.	Test Score.
Major J. G. Dugdale (K.-C.)	188
Bradley Agricultural School (K.-C.)	187
D. C. Herbert (K.-C.)	144
Sherborne Park P.F. (W.R.)	137
G. H. H. Simmons (K.-C.)	120
F. L. Walters (W.R.)	112

(Signed) R. A. and A. M. JOHNSON.

The Cotswold Poultry Farm, Chalford.

H. S. WRIGHT, Hon. Secretary.

Shire Hall, Gloucester.

OUR FRONT COVER.

Miss Harrison Bell, whose photograph appears on our front cover, is very well-known to most of those interested in poultry, and particularly in duck breeding. There are few of us who have not visited the Dairy, Palace or Olympia Shows during recent years, and noticed the crowd round Miss Bell's stand, watching with amusement and delight the tame ducks which she has always on exhibition.

From the descriptive matter on our front cover it will be seen that Miss Bell is in the proud position of being the owner of a duck which holds the World's record, and from the first Duck Laying Test she has always held a prominent position with the ducks from Welwyn.

Khaki-Campbells are much to the fore on the Sisservenes Farm, but White Runners are also one of the leading features, and of these Miss Bell has a typical strain. There are also Light Sussex and White Leghorns, of which Miss Bell has some typical specimens.

MERCHANDISE MARKS BILL—MARKING OF IMPORTED EGGS.

To the Editor of "Eggs."

Sir,—As you are probably aware, Sir Guy Gaunt, M.P., is bringing forward, as a private member, the above Bill which, as you will remember, had already passed through the Committee stage of the House of Commons, during the last Session of Parliament, and which, owing to the dissolution last November, fell to the ground. This Bill will be presented for its Second Reading on Friday, March 7th.

The National Poultry Council is most anxious that the portions of the Bill relating to Marking of Imported Eggs shall be carried into law even though the other provisions (to which it is anticipated there will be considerable opposition) ultimately are omitted. Producers and consumers are, therefore, urged to immediately bring their influence to bear upon all Members of Parliament in their respective areas and ascertain, if possible, whether in the event of their not being in agreement with the Bill as a whole they would be prepared as an alternative to support and vote for that portion of the Bill dealing with Imported Eggs, as it is believed that many Members of the House would be sympathetic towards this section of the Bill even though opposed to other clauses contained therein.

In view of the fact that last year approximately £11,000,000 of eggs were imported into this country (many of them greatly inferior in quality to the home-produced article), which were to a considerable extent mixed with and sold as British Eggs, thus perpetrating a gross fraud on the consuming public, it is felt that, in the interests of producers and consumers alike, this measure of reform should be carried into law at the earliest possible moment.

Realising the great influence of the Press in educating public opinion, you are requested to give the fullest possible publicity and support through your valuable journal to the above Bill. It may be pointed out that no measure of Protection is thus involved. All that is asked for is that consumers of eggs in this country shall be given the opportunity of knowing the origin of such, and thus be enabled to judge for themselves the value of the article they purchase.

Yours faithfully,
STANLEY STREET-PORTER,
President National Poultry Council and
Chairman Parliamentary Sub-Committee.
20-21 Essex Street, London, W.C.2.
February 25th, 1924.

POST-MORTEMS—Continued.

R. S. V. Pneumonia was the cause. "Grogginess" is due to want of oxygen. An auto-intoxication.

J. A. B. Just a case of poisoned air. Crowding and breathing an atmosphere loaded with Co2. The lungs were actively congested, but the other organs were healthy.

"Smith." The post-mortem appearances are consistent with your view of "faintness and trampling to death." They were nice thriving chicks.

E. G. B. The cockerel had a diseased heart. It was very greatly dilated, and finally drowned in dropsical fluid. The rallies that you mention are quite consistent with the post-mortem findings. "The heart is deceitful above all things, etc."

J. R. B. (Ringwood). One of the chicks had pneumonia, and the other inflammation of the kidneys. I should regard them as cases of chilling and not infection.

L. D. E. Pneumonia was the trouble in this pullet.

L. F. S. This plump cross-bred chick, a month old, had not even reduced the yolk sac from its original size. It was a victim of coccidiosis. Give Catechu to the others.

G. M. C. Three had pneumonia, but not of the infectious type. It is always liable to become so, and dead birds should be burned.

W. E. V. C. This is not B.W.D., but the form of infectious pneumonia, due to fungi (chiefly aspergillus fumigatus). The spores may be inspired, or ingested with food. They are widely distributed in nature. Damp foods and bottoms of sacks stood on the ground are among the causes. Also mouldy bedding that has been dried. These remarks should point to the means of prevention. "Catechu" is not prescribed for this disease.

H. LEENEY.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Rendel and Murphy, Messrs., Owley, Wittersham, Kent.
Greaves, F. G. H., Woodbank P.F., Hailsham, Sussex
Johnson, Major C. G., Oakhurst Farm, Detling, near Maidstone.
Phillips, P. R., "Briar Lea," Beare Green, Dorking, Surrey.
Robinson, Capt. D. C., Ovoca Manor, Avoca, Co. Wicklow.
Mercer, C., Scarva, Co. Down.
Brown, Miss T., The Willows, Aylesbury Road, Healing, Leics.
Smith, Wm. H., 59, September Road, Tuebrook, Liverpool.
Williams, Mrs. A. J., The Warren, West Hill, Ottery St. Mary.
Womersley, E., Hatchett Hall P.F., Tabor Road, Pellon, Halifax.
Riddel, Miss A., Ford Lane P.F., Northenden, Cheshire.
Macrae, Miss J., Winburg, Mallaig, Invernesshire.
Thornley, J. W., The Hall P.F., South Cockerington, near Louth, Lincs.
Layton, Mrs. E. M., South Zeal, Okehampton, Devon.
Waddilove, Robt., 371, Halifax Road, Todmorden, Yorks.
Dixon, Commander A., R.N., O.B.E., Hilden, West Hill, Ottery St. Mary.
Snelling, Gerald, "Cowcroft," Salhouse, Norfolk.
Stansbury, Miss K. W., Hawthorne Dene, West Hill, Ottery St. Mary.
Briscoe and Ennis, Messrs., Back Lane P.F., Haresfinch. St. Helens, Lancs.
Rippen, Æ. Stuart, "Glenwood," Wrecclesham, Farnham, Surrey.
Wilson, Mrs. Carlos, Welford Farmhouse, Newbury.
Button, A. M., Bowshots Cottage, West Grinstead.
Price, R. P., Vennyfach, near Brecon.
Rodger, Hugh, Abdene P.F., Trottersclifffe, near West Malling, Kent.
Wilson, T. M., Spring Cottage, Boston Spa, S.O. Yorks.
Lambert, G., Dane Hill, East Grinstead.
Dagworthy, H., Chapple Street, Sidmouth, Devon.
Norton, T. Osmond, Silver Street, Walgrave, Northamptonshire.
Garbutt, W. O., The Rock, Longthorpe, Gloucester.
Atares, Mrs. W., The Parlieu, Hambledon, Hants.
Clayton, J. W., "Halidon," Wisbech, Cambs.
Everard, Dr. A. G., Swievilands P.F., Biggin Hill, Kent.
Crum-Ewing, Miss C. M., Strathleven, Dumbarton
Heffer, R., Hatch House, Woodlands Road, Hockley, Essex
Letts, A. E., High Street, Irchester, Wellingboro'
Douglas, Mrs., Auchlochan, Lesmahagow, Lanarkshire.
Tomkin, Wm. H. J., Hale P.F., Westburton, near Pulborough.
Anderson, E. Calne, Nr. St. Ives, Hunts.
Walker, H. Dyson, Water Royd Hall, Mirfield.
Smith, C. B., Quarndon, Derbyshire.

NATIONAL POULTRY COUNCIL.

MEETING AT HEREFORD.

The postponed meeting of the National Poultry Council was held at the Town Hall, Hereford, on Thursday, February 21st. The President (Mr. Stanley Street-Porter) was in the chair, and there was a fair attendance of delegates.

Retirement of Mr. Tom Barron.—A letter from Mr. Tom Barron was read, expressing regret that owing to ill-health he was compelled to resign his membership of the Council. Mr. Barron added that he felt most keenly having to sever his connection with the work of the N.P.C., and should always have the pleasantest recollections of his association with it.

The President moved the following resolution:—

> "That the National Poultry Council receives with deep regret intimation that Mr. Tom Barron has resigned from the Presidency of the Lancashire Utility Poultry Society owing to illness, and that he is thus unable to continue his service upon the Council. It expresses the earnest hope that he may speedily be restored to health and vigour, and that he may soon be able to resume active association with the Council.
>
> "The Members of the National Poultry Council desire to place on record their warm appreciation of the great work and influence of Mr. Tom Barron, both as a breeder, and in respect to the public spirit evinced by him, which have contributed so much to advance the Poultry Industry, and pays this tribute to his invaluable help and generosity in the foundation of the National Poultry Council, as its first Vice-President, its second President, one of its representatives upon the Ministry of Agriculture's Poultry Committees, and in other directions."

This was seconded by Mr. P. Hedworth Foulkes, and carried unanimously.

The retirement of Mr. Barron is sincerely regretted by every member of the Council.

The Ministry of Agriculture notified the Council of Mr. Barron's retirement from the Poultry Advisory Committee, and the National Poultry Institute Committee, and asked that a successor should be appointed.

A vote was taken, and Mr. W. Hammett was elected by a large majority. This necessitated his retirement from the committee of the Northern Breeding Station, in his place Mr. W. Thompson was unamously nominated.

EXECUTIVE COMMITTEE REPORT.

The President expressed regret that owing to ill-health, the Chairman of the Executive Committee (Mr. A. T. Walker) was unable to be present, and it was unanimously agreed that the Secretary should write Mr. Walker, and express the regret of all present at his illness, and their good wishes for a speedy recovery. The following report was read by the Secretary:—

Report of Executive Committee, presented to National Poultry Council, Hereford, February 21st, 1924.

The Executive Committee beg to report that two meetings have been held since the last meeting of the Council at Bedford, October 11th, 1923.

Affiliations.—The following applications for affiliation have been received and approved:—

The National Federation of Women's Institutes.
Wallasey Poultry Society.
Brighton anl District Utility Poultry Society.
Warwickshire Federation of Poultry Societies.
Marsh Daisy Club.
Wessex Poultry Breeders' Association.
Wolstanton and District Poultry Society.

It is deeply to be regretted that the greater number of Poultry Societies which have not yet associated themselves with the National Poultry Council still withhold their practical support. The work which has been accomplished by the Council has been of such great importance that we might have expected those who stood on one side would have recognised its value, and that fuller organisation is necessary to bring its full weight in every direction. This question is one which deserves the attention of the Council and all engaged in the Poultry Industry.

Patrons.—The following new patrons have been registered since the last meeting of Council:—

Mr. John H. Dowden, Heydown, Heathfield, Sussex.

Mr. Leslie Williams, Liss, Hants.

Capt. Richard A. Arkwright, Willersley Poultry Farm, Broadway, Worcester.

Mrs. E. A. Parker, The Elms, Gosforth Northumberland.

Mrs. H. M. Mackenzie, Chappengate, Ambleside, Westmoreland.

Messrs. Philip Church and Sons, Swan Wharf, Bishops Stortford.

The Anglo-American Oil Co., Ltd., 36, Queen Anne's Gate, London, S.W.1.

A large number of the Special Circulars showing the work of the Council have been sent out, and it is hoped that these, and the efforts of the County representatives, will result in a considerable addition to the Patrons' List.

General Election, November, 1923.—A Manifesto was issued to all candidates at this Parliamentary Election inviting them to state their position with respect to various questions which have been raised by the National Poultry Council, notably the Merchandise Marks Bill, which was not passed before the dissolution, the restrictions upon poultry-keeping by tenants of Council Houses, Income Tax of Poultry Farmers, and Rating of Poultry Farms, and the Sale of Dried Eggs, to which a large number of replies were received, the majority of which cordially accepted the recommendaations made, promising support. In some instances there were one or two reservations awaiting further information, and in others the candidates stated that they could not answer questions except these were submitted by electors in their constituencies. In addition to the above, copies of the Manifesto were sent to societies and others.

Finance.—Report to be presented to the Council by the Finance Sub-Committee will indicate the present position of the Council funds. In accordance with the announcement made at the Bedford meetings the Scientific Poultry Breeders' Association, as a result of appeal to its members for special contributions on the basis of one shilling each, has paid over £200 for the General Fund, and £100 for the Legal Defence Fund. The generous support given by the Association named throughout is commended to the attention of others, and it is hoped these will adopt the same plan. If that were the case the work of the National Poultry Council would be facilitated and the difficulties which it has to meet would be removed.

In view of the great increase in the work upon the Treasurer, due to growth of the Council, and the formation of a Legal Defence Fund, involving increase of his office staff, the Executive has agreed that the allowance for his office expenses should be increased from £25 to £100 per annum, which is submitted for approval. It may be pointed out that if this work were undertaken by the Secretary an additional clerk would be required, which would involve a higher expenditure.

County Representatives.—This scheme is now being put into operation, and representatives appointed in about half of the various districts in England, of which a list will shortly be issued. It is desirable that these areas not yet covered should be provided for, and the co-operation of ladies and gentlemen of influence is invited. Arrangements are in progress for a series of meetings, at which the President will speak as to the work of the National Poultry Council.

Reports.—These will be presented by Sub-Committees, and are commended to consideration of the Council. The Food Sub-Committee have had an interview with representatives of the National Farmers' Union as to the charges made for feeding stuffs, which question is now under consideration by the union named.

Legal Defence Fund.—The contributions and promises to this fund now amount to £433 8s. 8d., which is a promising growth. When it is remembered that of this amount £100 was contributed by the proprietors of "The Feathered World," and £100 by the Scientific Poultry Breeders' Association, it will be seen that the subscriptions received from those engaged in poultry breeding and production only reach £233 8s. 8d., which, considering the importance of the purposes for which this fund will be used for poultry-keepers, is very small indeed. The cases referred to below may have to be carried to the High Court of Justice, in which case much more money will be required. It is urged, therefore, that every effort shall be put forth to raise this fund to at least £1,000.

Income Tax.—The Inland Revenue authorities withdrew the notice of appeal in Mrs. Sharp's case, as reported in the Minutes of the last Council meeting, and which it had been decided that the National Poultry Council should defend. Several other cases have been under consideration by the Executive, and one of these has been selected for making a test, namely, that of the Bradley Egg Farm, Ltd., Alresford, Hants, in which the local Income Tax Commissioners had decided that Income Tax should be paid under Schedule D., that is, on the basis of profits and not rental, as should be the case if poultry farming is husbandry within the meaning of the Finance Act. It is hoped that this test case will be carried forward so that the position may be decided definitely. The solicitors of the National Poultry Council have been instructed, and have the appeal in hand.

Rating of Agricultural Land.—Since the further concession as to rates upon agricultural land, in a considerable number of cases, local rating authorities have been attempting to compel the payment of rates of poultry farms on an industrial basis. The question has been under consideration of the Executive Committee as a large number of cases have been brought under notice. A test case has been selected, that of Messrs. Whitwan Bros., of Golcar, Yorks., and which came before the Huddersfield magistrates on January 8th. The Urban District Council submitted that the defendants are using their land purely as a poultry farm, although they have several cows and a number of pigs, and that, therefore, they could not claim reduction of rates upon the land occupied, consisting of fourteen acres, on the ground that the land was not agricultural within the meaning of the Agricultural Ratings Act, 1896, spite of the fact that the farm for twenty years has been rated as agricultural.

Messrs. Marshall and Woodhouse, instructed by the National Poultry Council, submitted on behalf of the defendants, that the land is primarily used for grazing, irrespective of the fact fowls are allowed to run on the land, which is meadow or pasture, and that they are entitled to relief in respect of rates in that poultry farming is husbandry within the meaning of the Act. Various other cases were cited, and it was intimated that this was regarded as a most important one, and that should it be decided unfavourably to the defendants the National Poultry Council would probably carry it to the High Court.

After a very lengthy hearing the Bench adjourned the case to March 11th, when a decision will be given.

Fowls in Urban Areas.—Since the last meeting of the Council several instances have been reported in which Sanitary Authorities have illegally ordered the removal of fowls kept in urban areas. Steps have successfully been taken in defence of poultry-keepers. It is however, essential that every effort shall be put forward to maintain sanitary conditions.

National Poultry Institute Scheme.—Since the last Council subscriptions, amounting to £24, have been received for the Institute Fund, inclusive of £5 per the Midland Federation, £6 10s. from the Northern Poultry Foods Co., of Middlesboro', and £4 9s. by the Norfolk County Fund (making a total of £100 from that County). The "Feathered World" has reported that the Birmingham Chamber of Agriculture, on the iniative of Mr. Lawrence C. Tipper, President, has collected £31 19s.

As the money to complete the scheme must be forthcoming as soon as the plans for Harper-Adams are approved, it is recommended that steps should be taken to secure the balance required, amounting to about £500. By concerted action this should be accomplished without difficulty if all will do a little.

Plans for the Northern and South Breeding Stations are being pressed forward. The respective committees recommended that the Northern Station (egg breeding) should be at Reaseheath, Cheshire, and that the Southern Station (table poultry) at Wye College, Kent, which have been approved.

Railway Charges.—The mis-reading by railway officials of the instructions issued by the various railway companies with respect to the concession that poultry, etc., returned from shows shall be charged for the return journey, if unsold, at half rates, has led to a large amount of correspondence, in that it had been claimed :—(1) that this only applied to birds entered in selling classes, and (2) that a signed certificate from the Secretary of the Show must be produced to the effect that the birds were the same as those sent. Owing to the representations of the National Poultry Council sums paid in excess have been returned and instructions given, which, it is hoped, will avoid difficulty in the future. It is desirable that all such cases should be reported.

Responsibility of Vendors of Hatching Eggs. — As instructed by the Council a set of conditions for printing in catalogues, and upon invoices, was drafted by the Press Committee, and published, after it had been revised by the Honorary Solicitors. The Executive has remitted this back to the Press Committee for further consideration.

Losses by Foxes.—Reports have been received from different parts of the country which indicate that there has been a great increase in the number of foxes, and that poultry-keepers have suffered heavily as a consequence. In several cases compensation has been secured through the Masters of Foxhounds Association.

A different question has, however, arisen, namely, that such losses have been reported in areas over which there is no hunting, evidently due to foxes going farther afield in search of food. Under such circumstances the hunts have refused to pay for losses, as the districts are outside their areas. Where that is the case the only course to adopt is for the poultry-keepers to take steps to protect themselves.

Foot and Mouth Disease. — The recent severe outbreak of Foot and Mouth Disease in several counties raises questions which are of great importance to poultry-keepers, notably, as to how this disease is spread, and how far poultry may be liable to infection where the disease is present. In some districts hunting has been stopped, and it is suggested that foxes are carriers of the disease. At the present time knowledge on these questions is very limited. It is suggested that poultry-keepers should obtain and communicate evidence which may be helpful.

Diseased Poultry at Sales and Markets.—No report has been as yet received from the Ministry of Agriculture and Fisheries as to the results of the circular issued by it relative to the proposed inspection of poultry offered for sale at markets and auction sales.

Signed on behalf of the Executive Committee.

(Signed) A. T. WALKER,
Chairman.

January 23rd, 1924.

Finance.—The Treasurer reported a balance in hand of £146. Patrons showed a pleasing increase on last year, but there was still room for considerable improvement. Mr. Brownson drew attention to the increased expenditure and the imperative necessity of finding means to meet this. As the result of the Lancashire and Cheshire Trials, Mr. Hamnett expected to hand over to the Council the sum of £50, and Mr. A. H. Brain informed him that as a result of the draw at the Midland Festival he thought that the percentage to the N.P.C. would amount to another £50. They were greatly indebted to the L. and C. Committee and the Midland Federation for this assistance.

REVISION OF CONSTITUTION.

The President gave notice that it was his intention to move a resolution at the next meeting of the Council that a Committee should be appointed to consider the revision of the Constitution in order that Trading Societies should be admitted to the privileges of membership.

PARLIAMENTARY COMMITTEE REPORT.

The Chairman of the Committee announced that the Second Reading of the Merchandise Marks Bill would be taken on March 7th. It would be brought forward in the same state as when it left the Committee stage in the previous Parliament. There was some danger that the whole Bill would not be passed, but it was hoped that a sympathetic attitude would be taken with regard to the clause relating to the Marking of Foreign Eggs.

A Committee consisting of the President, Vice-President, Mr. A. T. Walker and the Secretary was appointed with power to act as they thought fit.

The following resolution was moved by the President, who referred to a sentence in the Premier's speech at the opening of Parliament :—" That the Ministry of Agriculture and Fisheries be asked to receive a deputation of the National Poultry Council with respect to the extension of Credit Facilities to producers' Societies to enable them to finance the preservation of eggs from the spring to the autumn months of the year."

This was agreed to.

DISEASE COMMITTEE REPORT.

Mr. Tom Newman, Chairman of the Committee, referred to the slaughter of poultry during the recent outbreak of Foot and Mouth Disease. It was recommended that railway companies who loan hampers to breeders should be asked to disinfect them when returned, and it was further recommended that officials at Shows should more carefully examine birds before being penned, and should immediately remove any bird which showed signs of illness at any period during the show.

PRESS COMMITTEE.

Mr. J. G. Kitson, Chairman, stated that the Committee had been engaged with the liability of vendors of hatching eggs and chickens framing rules for the protection of both vendor and purchaser.

FOOD COMMITTEE.

Mr. Tom Newman announced that a deputation had waited upon Mr. German, the Secretary of the National Farmers' Union, to endeavour to secure the assistance of the Union in respect of the high price of foodstuffs, more particularly of Millers' Offals. They had been most sympathetically received, but he feared that in the direction of a reduction in prices there was not much to be hoped for. He read a letter from Mr. Guild, of the N.F.U., in which the latter directed attention to the quality of foodstuffs, which had been carefully discussed by the deputation when it had met Mr. German. Mr. Guild stated that the N.F.U. were carefully considering this point, and cordially invited the co-operation of the Council in helping it to effect some very desirable reform in this direction. Mr. Newman advised the Council to concentrate on this point, as the quality of foodstuffs at the present time showed great inferiority over pre-war days, and there was increasing deterioration.

Railways Committee.—Mr. Clem Watson (Chairman) spoke of the complaints received as to the trouble experienced in getting birds back from shows at the half rate. Apparently many of the clerks at the stations were not aware of this rule, but exhibitors should insist upon it. It was important to remember that birds carried at this rate were at owner's risk.

County Representatives.—A letter of protest with regard to County Representatives and the formation of County Federations was sent by the Poultry Club. Major Tom Potter urged that the Poultry Club had many years ago divided the country up, and appointed representatives in each county, and the club held the opinion that the Council's action was calculated to be detrimental to the Club's interests. There would be overlapping and consequent waste of the Council funds. Mr. Edward Brown stated that the Council was acting in strict conformity with Clause IV. of the constitution, which empowered it to form federations where none existed. The President pointed out to Major Potter that the fact that the Club had representatives in different counties could not be said to affect the question of federation. Major Potter received little support from his colleagues, and after a long discussion Mr. Tom Newman moved that the letter be referred back to the Poultry Club so that a clearer statement of their case might be made. Major Potter intimated that he would agree to this course provided the Council gave an undertaking not to attempt the formation of federations in the interim. This undertaking the Council unanimously refused to give, and Mr. Newman's resolution was seconded by Mr. Hamnett and carried without dissent, all the Poultry Club representatives voting for it with the exception of Major Potter.

At this stage the Mayor of Hereford arrived. He was most cordially received. In a neat speech he extended a very hearty welcome to the Delegates, decanted on the beauties of the City, and expressed the hope that in the near future the National Poultry Parliament would be held there. The President thanked the Mayor for the kindly welcome, and the latter, remarking that he should have the pleasure of meeting them later in the afternoon and would not intrude on their deliberations, then retired amidst applause.

The President then introduced Mr. J. B. Merrett, Editor of the New Zealand Poultry Journal. Mr. Merrett, who was very heartily received, said that he was very pleased to be a "listener-in" at their meeting. They looked towards this old land as an old Mother. He came over primarily to establish trade relations with us. It was a long-looked-for visit. He brought over between £6—£7,000 worth of eggs. All these had been sold, and the whole of it had gone back in goods, not in cash. Not half a million pounds worth of eggs and poultry of the £11,000,000 worth imported came from within the Empire. He had enquired of the egg importers of Tooley Street whether they ever obtained requests from exporters for letters of credit on London banks, and the reply had been, "not once in a blue moon," so that all the eggs we imported were paid for in hard cash and went out of this country into the hands of the foreigner. He had been trying to make up his mind while listening to the debates as to which country was ahead. Sometimes he thought the one and sometimes the other. Twenty-five years ago the New Zealand Government had taken a great interest in the development of the Poultry Industry, had established experimental farms, and circulated pure-bred stock amongst the farmers. Thirteen years ago the New Zealand Association was formed, they had met with many obstacles, and had overcome them. The financial difficulty had been met by charging through all the co-operative societies throughout the country sixpence for every 100 dozen eggs marketed. There were no distinctions between Fanciers and Utilitarians such as obtained here. The men who were receiving the greatest profits were the big producers. The Government would not recognise any single society, everything had to be done through the Association. After a twelve years' fight they had succeeded in procuring the prohibition of imported eggs except for stock purposes. If they decided to mark imported eggs, there would be no opposition from New Zealand, as all their eggs were already branded. A well-known authority had stated that there was no class of food to-day which contributed less to disease amongst human beings than poultry as food. The railways offered them the greatest facilities, returned birds from shows free of charge, made no charge on empty rates, and paid for all breakages. They marketed their eggs in wire carriers, which he thought were simpler and better than the egg boxes in use here. He congratulated the Council on its work, and wished it all success. Mr. Merrett's speech was very heartily applauded.

Egg Substitutes.—Mr. Tom Newman drew attention to the sale of egg substitutes, which contained no vestige of eggs, and the sale of liquid eggs impregnated with boracic acid which was forbidden by law to be used in small cakes for young children. He particularly dwelt on the report of the Medical Officer of Health for Hampshire, and urged that representations should be made to the Ministry of Health. This was seconded by Mr. Bostock Smith and carried.

Increased Consumption of Eggs.—Mr. Bostock Smith moved that efforts should be made to encourage a greater consumption of eggs, and stated that, while he was an optimist, they must look to the future, increased production made increased consumption necessary. He instanced the value of publicity in the case of the banana. He asked that a committee should be appointed to see what could be done. This was seconded by Mr. Williams and agreed to, Mr. Brain, Mr. Powell-Owen being elected with Mr. Bostock Smith.

Broadcasting.—The President proposed that the British Broadcasting Company should be approached. He said that considering the large number of people interested that broadcasting poultry talks was likely to prove popular. Mr. Collier stated that the L.U.P.S. had approached the Manchester station, and they had been informed that talks of this kind, whether in connection with horticulture, agriculture, or any industry resulted in a very large number of complaints, and they were therefore unable to consider the proposal.

The following resolution was moved by Mr. P. Hedworth Foulkes, seconded by Mr. E. J. Meekings :—" That the National Poultry Council, recognising the results which have been achieved by the Royal Agricultural Society in improving Farm practice by offering Medals and Prizes for the best-cultivated farms in the Society's Show areas, and noting that the Society has now extended its encouragement of good management to " Orchards and Fruit Plantations " in conjunction with the Federation of British Growers, takes steps to approach the Royal Agricultural Society with the object of obtaining similar encouragement to Poultry Farms by that Society."

National Poultry Examination Board.—Mr. P. Hedworth Foulkes (Chairman) reported that the committee had not met since the last meeting of the Council. Particulars and Syllabus had been issued for the examinations to be held in September at the Hutton Farm School, Preston. The Board recommended that the Council make application to the Ministry of Agriculture for a similar grant towards the cost of examinations in 1924 as was made in 1923.

Poultry Statistics.—It was announced that the Ministry of Agriculture will collect statistics as to the number of poultry in the country in the ordinary course.

National Poultry Parliament.—It was agreed to accept the invitation from Salisbury for the Annual Meeting of the National Poultry Council. Votes of thanks to the Mayor, and Corporation and Citizens of Hereford for the kindly welcome extended and the facilities given the members of the Council were moved by Mr. Hamnett, seconded by Mr. Corrie, and carried amidst applause.

Mrs. Rawson moved a hearty vote of thanks to Mrs. Harris and the local committee, who had done so much to make their stay pleasant and enjoyable. This was seconded by Mr. Williams, and carried unanimously.

In the afternoon a meeting was held at the Shire Hall, the Mayor presiding. The speakers were: The President, Mr. Clem Watson, Mr. Bostock Smith, Dr. Crowther, Mr. Tom Newman, Capt. Pierson Webber, and Mr. Edward Brown.

Correspondence.

SILKIE FEATHERING.

To the Editor of " Eggs."

Dear Mr. Newman,—A remark you let fall in your columns sometime ago has been a stimulus to my musings. You were discussing "mutants," and, referring to Silkie-ness, expressed a desire to know what exactly this type of plumage was.

I wonder whether the bird of the silkie plumage is not one which has that type of feather structure which is normally present at the base of every feather, extended throughout the complete feather length. All fowls have this type of feather regionally, do they not? If every feather is partly silkie, if certain regions of every fowl are silkie, then the completely silkie fowl is one in which this silkieness has been extended throughout the whole feather and throughout all the regions of the plumage.

Yours sincerely,

J. A. E. CREW.

Animal Breeding Research Dept.,
The University, Edinburgh.

TRING AGRICULTURAL SOCIETY.—POULTRY SECTION.

To the Editor of " Eggs."

Dear Sir,—The 80th Annual Show of the above Society will be held in Tring Park, Tring, on Thursday, 7th August, 1924.

Messrs. Clem Watson, C. F. Isherwood, W. Powell-Owen, and T. J. Franklin have been appointed to judge the exhibits in the Poultry Section.

The majority of the P.C. Cups will be up for competition.

If anyone is desirous of guaranteeing classes for any particular breeds they should please communicate with the Secretaries at an early date, as the Schedule is in course of preparation.

Yours faithfully,

TOMPKINS and PATTERSON,
Hon. Secs.

Some Fruit Growing Notes to Help Poultry Keepers.

By F. W. WHEELER, F.R.H.S.

A QUESTION ON SPRAYING.—It is most natural that a poultry-keeper should query whether there is likely to be any harmful effects to his birds from the use of various spray mixtures employed to kill insects and fungi on fruit trees in his runs, and this question crops up in Fruit Growing Journals as well as in Poultry circles.

It is wondered whether harm might come from the grass under the trees, which naturally catches some of the surplus spray; or whether from poisoned caterpillars the poultry might pick up. This fear may partly arise from the fact that Beekeepers have had big losses when Fruit Farmers are spraying their orchards with an Arsenate of Lead mixture on an extensive scale.

If this is done while the blossoms are fully out and the bees are busy collecting the nectar, losses are bound to occur, so fruit growers are being urged to do this work just before the blossom opens, or preferably directly after it falls.

It is only fair to the fruit farmers to say that the periods of blossoming of the various varieties of apples extend over a whole month, and as an orchard is generally planted with more than one variety, and they do not all start to open their flowers at the same time, it is easily recognised how spraying would be almost indefinitely postponed while the farmer was waiting for one or the other of his varieties to finish blossoming.

I have a most interesting list of the dates certain varieties commence to bloom, which was published in the Journal of the Board of Agriculture (Vol. xvii., No. 1), and compiled from records of 26 varieties taken in various parts of England, and during several years (about 1907). The trees started to bloom about May 6th, with Irish Peach, Yellow Ingestre and Golden Spire, and it was the 21st day of the month before the last Court Pender Plat opened. If I hear that it would interest any readers, I will give the list with dates on some future occasion.

(*To be Continued*).

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, FEBRUARY 22nd, 1924.

GRAIN AND FEEDING STUFFS.—At both Liverpool and London higher prices are quoted for British wheat this week, the advance amounting to 3d. per cwt. at each market; supplies are limited and demand fairly active. Good samples of barley are extremely scarce and command fully recent prices; feeding grades are also in very short supply, and maintain their value without difficulty. Home-grown oats meet a firm trade and quotations are higher at Liverpool. There has been little spot business passing in imported cereals owing to the difficulty of obtaining supplies from the docks. Such business as has been transacted has been at about recent quotations, except for maize, which is again dearer, Argentine averaging about 46s. per 480 lbs. (10s. 9d. per cwt.).

MILLERS' OFFALS.—Bran (British): Hull, £7 17s.; Liverpool, £8 5s.; London, £7 17s. Broad Bran: Bristol, £9 15s.; Hull, £9 7s.; London, £8 15s. Fine Middlings (Imported): London, £10 2s. Coarse Middlings (British): Bristol, £9 7s.; Hull, £9 5s.; Liverpool, £9; London, £9 5s. Pollards (Imported): Bristol, £8 10s.; Hull, £7 10s.; Liverpool, £7 7s. Rice Bran: Bristol, £7 17s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £11 7s.; Hull, £11; London, £11 12s. Maize Meal: Bristol, £12; Hull, £11 8s.; Liverpool, £11 2s.; London, £12. Maize Germ Meal: Bristol, £11 5s.; Hull, £11; London, £10 10s.; Maize Gluten Feed: Bristol, £11; London, £9 10s.

EGGS AND DEAD POULTRY.

British eggs are more plentiful but, contrary to the usual regular decline that occurs at this time of the year, prices show a slight advance, 1st quality averaging 22s. 9d. per 120, as compared with 22s. a week ago. Irish eggs are slightly cheaper, but the moderate offerings of imported sell at about last week's prices. Poultry is unchanged, except in London, where all descriptions are dearer, the advance being attributed to increased buying on account of the shorter supplies of meat.

Week-end Prices—Eggs (per 120): British, 23s., 21s.; Irish, 22s., 20s.; Danish, 23s. 6d., 21s.; Dutch, 22s. 6d., 20s. 6d.; Belgian, 21s., 19s.; Italian, 22s., 19s.; Chinese, 17s., 14s.; Egyptian, 13s., 12s.

Dead Poultry (per lb.): Fowls—Surrey, 1s. 10d., 1s. 8d.; Irish, 1s. 6d., 1s. 4d.; Others, 1s. 8d., 1s. 5d. Ducks, 1s. 8d., 1s. 4d. Geese, 1s. 2d., 11d. Turkeys, 1s. 8d., 1s. 5d.

EGGS.

Per Doz.—Ashford: First, 2s. 3d.; Second, 2s. 2d. Birmingham: First, 2s. 6d.; Second, 2s. 0d. Carlisle: First, 2s. 0d. Chelmsford: First, 2s. 0½d.; Second, 1s. 10¾d. Denbigh: First, 1s. 10d.; Second, 1s. 9d. Derby: First, 2s. 3d. Dorchester: First, 2s. 1½d. Exeter: First, 2s. 4d. Hereford: First, 1s. 9d. Hull: First, 2s. 0d. Ipswich: First, 2s. 3d.; Second, 2s. 0d. King's Lynn: First, 2s. 3d.; Second, 2s. 1d. Lincoln: First, 2s. 3d. Llandilo: First, 1s. 9d.; Second, 1s. 6d. Newport (Mon.): First, 2s 0d. Norwich: First, 2s. 1d. Oswestry: First, 2s. 3d.; Second, 2s. 2d. Penzance: First, 1s. 7d.; Second, 1s. 6d. Salisbury: First, 2s. 2d.; Second, 2s. 1d. Shrewsbury: First, 2s. 2d.; Second, 2s. 0d. Skipton: First, 2s. 3d. Truro: First, 1s. 6d. York: First, 2s. 4d.; Second, 2s. 2d.

FOWLS.

Per lb.—Birmingham: First, 1s. 4d.; Second, 10d. Derby: First, *5s. 3d.; Second, *3s. 0d. Exeter: First, 1s. 7d. Hereford: First, 1s. 4d.; Second, 1s. 3d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 1s. 7d.; Second, 1s. 3d. Newport (Mon.): First, 1s. 5d.; Second, 1s. 2d. Shrewsbury: First, 1s. 4d.; Second, 1s. 2d. Truro: First, 1s. 3d. York: First, *5s. 3d.; Second, *4s. 0d.

DUCKS.

Per lb.—Birmingham: First, 1s. 0d.; Second, 8d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 6d. Hereford: First, 1s. 4d.; Second, 1s. 3d. Llandilo: First, 1s. 7d.; Second, 1s. 4d. Shrewsbury: First, 1s. 6d.; Second, 1s. 4d.

*Per Head.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

E.G

Wednesday, March 5th, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

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PRICE TWOPENCE.

Twelve Months	Post	Free	12/8
Six Months	"	"	6/4
Three Months	"	"	3/3

Corner of large Laying House, 60 ft. by 15 ft., with White and Black Leghorn pullets on Mrs. HARRY KENT'S 110 Acre Farm, at Court Lodge, Hooe, near Battle, Sussex.

Our Positions speak for themselves

THE WHITE HOUSE POULTRY FARM

NATIONAL.—Out of 507 Pens competing—
Our White Leghorns: 2nd.
,, Black Leghorns: 13th.
,, White Wyandottes: 19th.

NORTHERN.—Out of 200 Pens competing—
Our White Leghorns: 9th.
,, White Wyandottes: 4th.
,, Black Leghorns: 9th.
(One Bird Short).

EAST ANGLIAN.—Out of 62 Pens competing
Our Rhode Island Reds: 6th.
(One Bird Short).
,, Light Sussex: 3rd.

Sittings from Sisters to Above: 21/-.
Carriage Paid.
From other Pens: 15/10 and 12/6.
Chicks Double.
Terms: Cash with Order.

Right on Top!

The WHITE HOUSE Poultry Farm

ST. NEOTS, HUNTS.

WHAT YOU ARE LOOKING FOR

A LARGE BROWN WINTER EGG
HIGH FECUND STRAIN.

PROOF——————**I HAVE IT**

MY PEN OF W. WYANDOTTES WON CHAMPIONSHIP AND GOLD MEDAL OVER ALL BREEDS (2,000 BIRDS) AT 1922 HARPER-ADAMS' TRIALS WITH THE BEST GRADE OF EGG OF ANY PEN THAT HAS EVER COMPETED IN THIS COUNTRY—i.e., 1,346 EGGS. ONLY 5 UNDER 2 ozs. AVERAGE WEIGHT 2.3 ozs.

AGAIN IN 1923 MY PEN AT HARPER-ADAMS' TRIALS WON SILVER MEDAL WITH A BETTER GRADE OF EGG THAN ANY PEN IN PUBLIC TEST IN 1923—i.e., 1,265, ONLY 11 UNDER 2 ozs. ALSO BEING AWARDED THE POULTRY CLUB MEDAL FOR BEST BREED CHARACTERISTICS (ONLY AWARD) IN THE SAME COMPETITION AND WITH SAME PEN.

AND AGAIN MY PEN 118 AT NATIONAL EGG TEST, HELD AT BENTLEY, 1923, WON SILVER MEDAL. 981 EGGS SCORE 981.

YET AGAIN MY PENS IN THIS YEAR'S HARPER-ADAMS' AND NATIONAL EGG TESTS HAVE NOT LAID A SINGLE 2nd GRADE EGG AND HOLDS HIGH POSITIONS.

FRED. H. COLLINS,
ST. JOHN'S P.F., BEWDLEY.
LIST FREE ON REQUEST.

Special Offer of Large Black Pigs.

Pedigree Stock at Commercial Prices.

During the next few weeks I shall have a large number of sows farrowing down, and in order to make room for the youngsters I am offering a limited number of excellent Breeding Gilts and Sows, also Boars with irreproachable pedigrees at 1/- per lb. live weight. All my pigs are bred to standard and have behind them generations of Royal Winners. At the Smithfield Show in December last, my two Pigs were top weight in the Large Black Class for those under nine months. Putting on weight quickly and economically is the main thing to aim at if Pigs are to be profitable, and the Smithfield success proves that my strain excels in this respect. If you want real profit makers that will thrive under all conditions take advantage of this opportunity and start or improve your herd with some of "Heaselands" Stock.

Full details will be found in my booklet, "Pigs that Pay," which will be sent post free on application.

E. Bostock Smith

"Heaselands," Hayward's Heath, Sussex, England.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, March 5th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

TYPE.

At Hereford, Mr. Clem Watson, in his address at the open meeting in the afternoon, after avowing his preference for the exhibition as against the utility side of the industry, proceeded to criticise rather severely the followers of the latter. The criticism was, however, fair, and the advice sound, and it was only on general matters that we found ourselves not in accord with what he said.

For example, the old quip as to utility breeders having to go to the fancier for birds in order to improve the stamina of their stock. This may occur in a few cases, but no breeder worthy of the name would do so. In the first place he would not allow his stock to deteriorate to such an extent as to render it necessary to bring in alien blood; in the second, assuming that he had done so, he certainly would not introduce stock which had not been trap-nested for egg production, and was without individual records, into his flock, if he did not wish all the work of previous years to go by the board. If he was a breeder in the true sense of the word, he would find a shorter and surer method to solve his problem.

However, it is not to criticise Mr. Watson that this article is written, although his remarks as to the lack of type in utility strains had much to do with it. In many respects the type in certain breeds is more nearly correct with the utility breeder than with the fancier, who sacrifices quite as much to extremes as we do. Our Leghorns, as a rule, are better Leghorns and nearer to the true type than those of the fancier. The same applies to all varieties of Orpingtons, which have got right away from the true original type, and from being the most popular breed in the country are now counted amongst the "have beens." The popularity of the Black Minorca can only be revived by a return to the type which we originally knew. There is real danger of the R.I.Red losing type owing to the craze for colour, but one might go on like this interminably, and it serves no useful purpose.

It is perfectly true that many of our strains are not typical. There are certain breeders whose strains are distinctive. We could distinguish, for example, between Mr. Tom Barron's and Mr. Frank Snowden's, yet both are pure White Leghorns, and both are typical. One may be a little higher on the leg than the other, and the characteristics of the one are not quite those of the other, but this does not alter the fact. It is a point the financier fails to appreciate. He may introduce Malay blood into his Leghorns; may use Cochin blood in his Orpingtons, in order to get the reach he wants in the first place, and the feather and cushion he requires in the second, and he will argue with you that the result is the typical specimen, although it may be far removed from the original standard as in the case of the Black Orpington, but he cannot understand that it is owing to the selection for a specific factor that these small variations in type occur with utility breeders, and he is obstinate in his belief that it is the result of out-crossing. If he had studied Darwinism, he might be in a better position to appreciate this point.

Let us take the White Wyandotte, as an example. The criticism is often made the utility breeder is too near the Rock type; that is to say, his birds are too long in the back, and unthinking people often argue that prevalence of the single comb is an indication that there is an out-cross with the White Rock, but this is rarely the case. The two characteristics are easily explainable. The Wyandotte is a composite breed, and a single comb variety was used in its make up. It is merely a question of reversion, certain individuals carrying the single comb factor. It is quite possible to breed out this factor, and to breed a strain which would be pure for rose-comb, although this possibility has been denied by one of the most successful exhibitors of Wyandottes, who was evidently unaware of this fact, and who had actually won many prizes with birds which carried this factor, for, in stating his case, he gave examples of winning birds which had breed a high percentage single comb specimens. With regard to the long back this is a characteristic which may be easily perpetuated if it is not decided to scrap a record producer because she fails in this particular. It is a question as to which is most important—the value of the bird as a breeder of highly fecund stock, or the value of type. She is none the less a Wyandotte because she has a long back, and the utility breeder must study the economic problem. To take another example. We have a letter from a well-known breeder of White Bresse. He asks us to note carefully whether the dark or light-eyed birds are the best layers, as he doing so himself. and wishes to compare notes, but the comparison would not help him. Assuming in the one case that the best layers are dark-eyed, it is simply because selection in the first place was of birds with the best records, and these happened to be dark-eyed, and this character has been perpetuated because the progeny of such birds would have dark eyes. Such would be the case with the light eyes in another breeder's strain. The colour of the eye itself has nothing to do with production. It is often remarked that in the Rhode Island Red the light-eyed birds are the best layers. That was true a few years ago, when a certain strain did a lot of winning in the laying tests; it is not true now.

In criticising the utility breeder the fancier should remember that certain of the characteristics which he demands are incompatible with selection for high fecundity—soft feather, for example. We do not say that a soft-feathered bird may not be a good layer, but we do know that soft feather would tend to disappear in a few generations, and that the bird would not transmit this factor and the high fecund factor to her progeny in the same degree. There is one other thing he should remember: **Breed type must be based on Utility**, and it is his departure from this fundamental fact which has enhanced the difficulties of the utility breeder. What he considers to be typical, is too often the extreme, and **the extreme can never be typical.** Further, the breeding for specific characters by fanciers too often results in a distinct departure from type. The utility breder must do his best to breed typical specimens but ever before him is the economic factor, and while we willingly admit there is every reason to work hard to improve matters, he must remember that the fancier's conception of type is not always the true one.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

INSPECTION AND REGISTRATION.

I expect that you are all as sick of this controversy as I am, but one must see that the S.P.B.A. is protected from deliberate misrepresentation. In this week's issue of "Poultry" the Editor remarks that "the S.P.B.A. tactfully accepted the inevitable." That is incorrect. As I stated last week, we were in an impregnable position, nothing could have prevented our carrying on. The Ministry had accepted our scheme, and were prepared to carry it through, and solely in the interests of unity we allowed the scheme to be postponed. What is difficult to understand is, that a contemporary should permit his columns to be opened to attacks on the S.P.B.A. by **anonymous** writers, who presumably are too cowardly and despicable to avow themselves, and are probably not at all anxious that there should be any inspection of farms, as it would not be conducive to their interests to have theirs inspected. Well, well, it doesn't matter; as I pointed out last week, we have benefited materially by this attack on our scheme. But I would not allow anonymous writers to make an attack on another society in these columns, or an attack on anybody—it isn't playing the game. If, however, you have a bad case, it may be a little bit difficult to play the game. With all respect to the Editor of "N.P.J.," his report of what I said at Bedford was entirely inaccurate, and his reporter came to me at Leicester Show and apologised for the error, and said he could not hear me clearly. I did not use the word "co-operate" except when speaking of the S.P.B.A. scheme, and then on behalf of the S.P.B.A. I invited other societies to co-operate. Major Potter endorsed this at the meeting with the delegates of the N.U.P.S. and Poultry Club last week. Now to turn to something more pleasant.

THE HEN-INCUBATOR.

I mentioned some time ago the "Hen-Incubator," and we exhibited one on our stand at the Dairy Show. This, it will be remembered, is so constructed as to allow the hen to sit on 27 eggs at once. I have not been able to try it myself, but Mr. Clayton Smith writes, giving his experience. He says:—

> "As promised, here is the result of my second hatch in the patent 'sitting box':
>
> "24 eggs put down, two broken first day, 19 hatched, two weak germs, one dead-in-shell = 24."

Although all eggs were less than four days old, twelve hatched one day and seven the next. All chicks are quite strong, and the mother hen is bringing up the whole lot (of course, she is having special attention and is well sheltered from the cold). The chief disadvantage appears to be that broken eggs are almost a certainty, inasmuch as they rest one on top of another, the breakages occur when the hen turns them, although it might be possible with less hay than I use to have them fairly flat, but I doubt it. There is at times considerable condensation from the cover, but the hen appears to keep in excellent condition. Taking the two hatches together (14 and 24), out of 33 hatchable eggs I obtained 32 hatchable chicks.

THE BEST CHICKS.

Someone has written to ask if I can tell him how to select "likeliest layers" from his fortnight-old chicks. That is rather a tall order, and it is best to admit at once that I cannot do so, only in so far that those chicks which develop most rapidly and feather best are usually the best layers. The pullet chicks which feather first down the back are almost invariably the best layers; those birds that are slow to feather are generally long in maturing, and, as far as my observation goes, contribute about 1½ eggs a week to the basket during the winter months. If Wyandottes, for example, are hatched in March, they will not as a rule lay until the end of November. With the yellow-legged breeds I like to keep an eye on the shank colour. If this is pale or almost white, even if the chick shows no obvious signs of disease, it should always be viewed with suspicion, especially if it is a little long on the leg; such birds are never profitable, and are often tubercular. It seems that I am not answering the question at all, or only arriving at it in the "negative manner," as someone has said. I cannot help him to pick out his "likeliest layers" at a fortnight old. He must be guided by the rate of development, note as mentioned above those which feather most quickly, study the nature of the feathering, see that it is "short and tight," not "long and loose." Observe the development of the secondary sexual organs (the comb and wattles); in the best pullets these develop early, showing that the ovary is becoming active. If you find pale leg colour with your yellow-legged breeds, pale anaemic faces in the others, and an inclination to "big wing," see that there is no crowding at night; that is where most mischief is done when rearing chicks. It is that massing on the floor, inhaling the exhalation from their bodies, and getting an insufficient intake of oxygen.

SEX-LINKED INHERITANCE.

In reply to many correspondents, may I say that it is not possible to tell the sex of any chicks at a day old in which the White Leghorn blood is used. Neither is it possible to do so with a cross between Rhode Island Red hens and Black Leghorn males. In the Register a full list of these sex-linked crosses is given; and also, in reply to two correspondents, the best of these crosses, in my opinion, are the Brown Leghorn-Light Sussex, and White Bresse-Light Sussex. This is only a personal opinion; next to this I should place the R.I. Red-White Wyandotte.

UTILITY DUCK CLUB.

I have received the Year Book and Breeder's Register of the Utility Duck Club, and if I may I should like to take this opportunity of heartily congratulating the Editor and the Club on so excellent a production. It is packed full of good things, and ought to be in the hands every duck breeder in the country. Just to enumerate some of its attractions. There is the final report of the National Egg Laying Test at Bentley; Capt. Long has a timely article on "Hatching and Rearing Ducklings by Artificial Methods"; "Experimental Duck Feeding," by Mr. Hubert Bolton. Mr. Bolton's experiments were curtailed owing to the ravages of foxes, but they are most interesting, especially his remark that "he has found the dry-mash system quite as economical as the wet mash, provided one uses hoppers larger than those used for poultry, as ducks need more feeding room, otherwise waste is bound to ensue." A capital article by Mr. Carrington on "Pedigree Work" follows, and "Spinal Meningitis and Other Things" are treated in a most interesting manner by Mr. Drinkwater. Miss Harrison Bell contributes an article entitled "Trap-Nesting and Toe-Punching," and Miss Barbara Raye is very interesting on "Early Hatching." Duckers should note what she has to say on the fireless brooder. "How to Fatten Indian Runner Drakes," by Mr. J. Barnes Reeve, will be welcomed by those who have to do with a surplus. "Management and Feeding of Ducks for Winter Laying," by Mr. C. S. Roscoe, who gives several different menus which will be found very economical. "The Long Life of the Duck," by Miss Barr. "Duck-Keeping in Volendam," by Mr. Hennepe; this interested me greatly, as we saw the methods employed when at the Hague three years ago. Mr. Chittenden contributes a most useful article on "Economic Housing," while Mr. Heseltine deals with a stiff problem in "The Irregular Moult," in a manner which will appeal to all his readers. The Club is doing splendid work, and its Register will add greatly to its good reputation.

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

A Quarterly Meeting will be held in the Master Builders' Rooms, Mount Street, Preston, on Saturday, March 8th, 1924. Chair to be taken at 3.30 p.m.

AGENDA.

1. Minutes of last meeting.
2. Affiliations.
3. Letters and communications.
4. Delegates' Report of the N.P.C. Meeting, held at Hereford.

5. Place of Federation Show for 1924.
6. Appointment of Show Committee.
7. Westhoughton Society's Notice of Motion to fix a Standard for Utility Poultry.
8. Stop Watch Competition.
9. Accounts.
10. Sub-Committee's Report. Finance, Educational, Laying Test.
11. Any other business.

E. COLLIER, Secretary.

February 23rd, 1924.

The following Sub-Committees are requested to meet at the same place at 2 p.m.:—

Finance.—Messrs. J. H. Hill, W. Hamnett, J. Graham, R. Bridge, F. J. Butterworth, J. P. Willacy, and S. Marson.

Educational and Propaganda. — Messrs. W. Grove, T. Edmundson, J. Dewhurst, J. R. Hull, J. Whalley, W. Fletcher, and W. A. Hall.

Laying Test.—Messrs. J. Edmundson, J. C. Barnes, T. Hudson, H. Hayes, W. Hamnett, J. C. Morris, N. Holt, and H. Roscoe.

Please Note.—All counterfoils, money and unsold tickets for Stop Watch Competition to be returned by March 1st, 1924.

CHANGE OF ADDRESS.

Major E. Gaved Stocker asks us to notify members that he has removed from Cuby House, Tregoney, to Trevean, Grapmound Road, Cornwall.

Modern Poultry Feeding.

By TOM NEWMAN.

At the meeting of the National Poultry Council at Hereford, Dr. Crowther, speaking on "Experimental work in reference to Poultry Husbandry," remarked that he thought that I would agree with him, that, in drawing up a formula, we were to some extent groping in the dark, and he referred especially to the digestibility of foods. I do cordially agree with him, we are groping in the dark, our knowledge of food values is almost negligible, but I am not so concerned on the question of digestibility, for, although it is perfectly true that "what does not digest does not nourish," it is also perfectly true that the value of what is digested, differs very materially. Much is now being made of some experiments which have proved that bran is not a very digestible food. There is nothing new in this, we have known it for some years, and, although it is added that for this reason it is an unsuitable food for poultry, we have the practical experience behind us to show that chicks will thrive on bran, and its value has been proved beyond doubt. While thoroughly appreciating the value of the work done by scientists in the laboratory, we must recognise that what is proved there, is often disproved in the field. To give one definite example. Kaupp, in his paper on "Digestible Nutrients of Poultry Feeds, as Determined by Poultry Laboratory Feeding Tests," shows that middlings has a very low percentage digestibility, and advises that for this reason it should be fed in relatively small quantities, and this advice is also given in reference to alfalfa and clover meal, bran, and other foods which are known to have a high fibre content. Let us consider No. 4 of the Wellingham experiments. The total ration consisted of two-thirds middlings and one-third dried milk, with a hopper of dry bran always before the chicks, and a very little grain fed as a scratch feed, and not as part of the ration. The results are known to you all. No such rapid and healthy development had been seen in this country before. They created a real sensation when exhibited at Harper-Adams, at Hereford, last week. Mr. Leslie Williams, Chairman of the N.U.P.S., came to me and said, "I must thank the S.P.B.A. for that middlings and milk formula. I never saw chicks grow so fast; you can actually see them grow." The fibre content of middlings as given by Kaupp is 7.15; of oatmeal 1.50. In the Wellingham experiments Pen 1 was fed in exactly the same manner as Pen 4, except that oatmeal was substituted for middlings, yet, in spite of the much lower fibre content, they never at any time made such healthy vigorous development as the middlings pen. Oatmeal shows a far higher digestible value than middlings. An average sample of bran has a fibre content of 9.50. If Kaupp is right, only 59.50 per cent. of the ground oat is digestible. How are we to reconcile this with the results obtained by the Sussex fatteners who use

WHITE BRESSE COCKEREL, "SIR MAWGAN."
Winner of three 1st and Specials in 1923.

WHITE BRESSE PULLET.
1st in Championship Class at N.U.P.S. Show, 1923.

it as the principal ingredient in their fattening? Or, if we are taking digestibility as the final test in the value of foods—which, in my opinion, would be a most fatal mistake, and for this reason I am sorry that such undue importance is being attached to it—let us take these figures as compiled by Kaupp. Digestible constituents in 100 lbs. of middlings 45.58 lbs., bran 37.80 lbs., maize 74.34 lbs., peas 71.40,; soya bean meal 64.93 lbs., Sussex ground oats 59.50.

Now we have definite results on which to judge the middlings, and we know that, although the digestibility is very low, yet there is no food which has given us equal results; it is superior even to oatmeal. We know it would be infinitely superior to maize alone, although the latter shows a much higher digestibility; but its use would cause the accumulation of internal fat, and this is of far greater importance than the mere question of digestibility, I mean the effect of feeding the different foods. The Sussex ground oats, relatively low as they are in digestible nutrients, are of much greater value in the development of the chick and to the fattener than oatmeal. A good sample of middlings we have shown is of greater value than oatmeal, although Kaupp has demonstrated that the oatmeal has 27 per cent. better digestibility. A good sample of middlings has much the same value as the ground oats, and its effect on the flesh of the bird does not appear to differ materially. So that we see, it is the quality and not merely the quantity of what is digested that really matters, and is the truest indication of the value of a foodstuff. Compare the common pea meal and soya bean meal. Here again the latter has a considerably lower digestible value, again the work in the field falsifies the results in laboratory, for we know that soya bean is incomparably the better food—that actual experience has taught us.

Let us compare fish meal and blood meal. Kaupp's laboratory tests shows that 75.96 of the dry matter of blood meal is digested, of fish meal only 54,23 per cent.; therefore we must conclude that 46 per cent. of it is passed through the system to form a heap of droppings—rather expensive if you use 20 per cent. fish meal in the mash at 24s. per cwt. But, again, our fish experience has taught us that the fish is more valuable than blood meal, because of the lime phosphates in which the blood is deficient.

The real factor in these considerations is not the digestible value of a food, but the value of the protein, and the mineral content, and the actual quality of the food itself. A sample of broad bran, such as I saw at Mr. Frank Snowden's, and of which he tells me he uses a large quantity, is far superior to 50 per cent. of the middlings which are submitted to me, and which are said to be so much more digestible. At the meeting of the National Poultry Council at Shrewsbury two years ago I mentioned the great deterioration in the value of bran and middlings, and said that a very high percentage of the former was wholly unfit to feed to poultry. I repeated this at the meeting at Manchester in May last, and the N.P.C. representatives went to the N.F.U. offices and inter-

WHITE BRESSE PULLET, CAPT. LESLIE SMITH'S.
1st and Special at Olympia, 1923.

viewed Mr. German. I raised the matter again; and we have reason to believe that we shall be able to secure some improvement in this respect. Whatever may be said or written to the contrary, whatever may be proved by digestibility tests, I still maintain that a good sample of broad bran is one of the best foods we have, and I have the practical experience of hundreds of others besides myself to go by. As for its being a stomach irritant, Mrs. Young wrote me the other day that out of 517 chicks hatched last season she reared 504 on the formulas taken from the register. True they were hatched and reared under hens, but do you think if they had suffered from "stomach irritants" they would have survived? Mrs. Atholl Stuart wrote to me some time ago regarding her White Orpington pullets: "I am simply amazed by the records put up by the pullets—so much so that I am now going to breed from them next season. Moreover, I have been killing cockerels weighing 6½ to 7 lbs. each at four months old, on your formula, no fattening." Could we do this on a stomach irritant? To repeat once more. In the Australian Laying Test the following formula has been used for years:—60 parts pollard (we must distinguish between pollard and middlings, the former is really a fine bran, carries far more fibre than middlings and far less flour), 20 parts bran and 15 parts alfalfa meal (which has more than double the fibre content of bran), and 5 per cent. fish meal. When alfalfa was not obtainable the bran was increased to 35 per cent., and on this mash the average of 197 eggs was obtained, the Black Orpingtons averaged 241 eggs, and one bird laid 304 eggs. An average sample of alfalfa contains 28.3 per cent. fibre, or three times as much as bran. If we were to have judged this mash by laboratory tests, instead of having actual results to guide us, what should we have said? It is seven years ago that I read a paper on feeding at a conference of the N.U.P.S. at the Abercorn Rooms, and then I drew attention to the inability of the hen to digest fibre; but experience has taught me that a food may have a high fibre content and still be of greater value to the poultry-keeper than one in which the fibre content is comparatively low, and what is of more importance to me is the quality of the food and not the fibre content.

YORKSHIRE FEDERATION.
NEXT MEETING.

The quarterly meeting of the Yorkshire Federation of Poultry Societies will be held by kind invitation of the Carlton Utility Poultry Society, in the Co-operative Reading Rooms, Main Street, Carlton, near Leeds, on March 8th, to commence at 2.30 p.m. Will all delegates try to be present.

The chair will be occupied by Mr. E. Croft (Hersay, York). Mr. Frank Snowden will present a report from the Laying Test Sub-Committee, the contents of which are of the utmost importance to all Yorkshire Poultry-keepers. The Secretary, Mr. A. J. Moore, will report on the visit to Hereford in connection with the meeting of the National Poultry Council.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (**NOT from Capt. Leeney**).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

Optimist (S. Wales). I have read your letter through very carefully, and when I had finished a verse occurred to me which you possibly know:—

> "The Optimist fell ten stories,
> And at each window bar,
> He called to his friends in passing,
> All right—*So Far.*"

You see he was simply passing through the air, which has been described as a very pleasant feeling—perhaps conducive to optimism; he had not reached the hard concrete floor, which was to awaken him so rudely. Now will you forgive me if I say that you are much in the same case. You have just fallen from the top story, and are passing through the air, presently you fall on the floor of hard concrete facts. You will then not talk so glibly of 200 egg flock averages, of 10 per cent. mortality, of 85 per cent. hatches, nor will you you find your profits work out for the sale of the edible eggs at 11s. per bird. To be perfectly candid—and to be candid is to be kind—you have over-estimated the average production of a large flock by about three dozen eggs, over-estimated your hatches by about 15 per cent., under-estimated your mortality by 10 per cent., and your profits by about 50 per cent. You did well to get an average of 193.5 eggs from the thirty White Leghorn pullets, and I thank you for the tribute to my formula; but you must recollect that the handing of large flocks is very different to handling small ones, where every individual bird is under your eye, and where you do not have to consider the labour question. Just get a little more experience before you launch out.

Incu. (Ludlow). I have examined the eggs you sent, and find that two were addled, and one clear; of the other fifteen, eleven appear to have perished about the 16th day. To get only six chicks out of 84 fertile eggs is very bad indeed, and I am forced to the conclusion that, in spite of what is told you, something did happen to the machine in your absence, and that the eggs were chilled. This is confirmed by what you tell me that such a large number of the embryos died at the same stage, which appears to be about the 16th day, as in those you sent me. It has nothing at all to do with the feeding, and the small percentage of meat meal in the biscuit meal would not in the least affect the hatchability of the eggs. (2) The pullet which is laying such a big percentage of double-yolked eggs should be removed from the pen for a short time, and fed rather sparingly. Do not give much animal food, and leave maize out of the menu for the time.

N. D. D. (Burton). I am afraid there is little I can do to help you with these chicks. There is no doubt that the bad hatch was due to the eggs being chilled, and the chicks are weakly as a consequence. Tonics will not help. You can only feed them well, give the bread and milk twice daily, that is placed in a basin, and sufficient bread forced in to absorb it, so that it breaks out in a crumbly condition. Frankly, you cannot do much good in a case like this, and really your best policy would be to scrap the lot, as it is very unlikely they will grow to healthy maturity. It would save you much anxiety and disappointment.

J. L. W. (Newport, I.o.W.). The Sussex ground oats are a really excellent sample, and good value for the money. I have no analysis of the fish meal, but as far as appearances go, it is quite a good one; and, provided you can get a guarantee that the salt content does not exceed four per cent., it would be satisfactory. The maize meal at 11s. 6d. for 140 lbs. is excellent value, and the soya bean meal at 13s. 6d. cwt. is quite good.

A. C. L. (Newbury). I think you must be a little careful with your Rate Collector. Poultry-keepers are rated at half the ordinary rate for their land as they come under the Agricultural rate. I cannot recommend you any breeders through these columns. We are sending you particulars of the S.P.B.A. by post, and should you join the Association you will get a copy of the Register free.

H. W. G. (Chard). Small mesh ½in. wire netting is generally an efficient protection against rats and other vermin, although it is astonishing what a weasel will get through, and you must not forget that rats will burrow underneath. For a permanent type of floor I prefer concrete.

F. (London). Indian Game cockerels mated to Light Sussex hens would give you a very fine table chick; rather slow to mature, but still, of excellent quality. (2) Your proposal to purchase a large incubator to hatch practically throughout the year, I do not agree with. I do not think you would get a profitable demand for table chicken throughout the year bred on these lines. (3) "Petits Poussins." There is a ready sale for them for a short period of the year, but it is always a risky business, and, unless you are sure of a reliable market, may result in a considerable loss. Further, to realise the proper prices they would want careful preparation, and should be milk fed. (4) I cannot think that there is any prospect of success if your main enterprise will be the fattening of table birds for the market, and selling them at from 7lbs. to 10lbs. in weight. The demand for birds of this size is not sufficient, and I do not think that any table poultry fattening plant in this country can be successfully conducted if the owner relies entirely on his own hatching and rearing to supply the number of birds required. Further, you do not seem to be acquainted with the requirements of the table poultry industry. The spring chicken season, for example, which is the most profitable, does not require a bird anything like 7lbs. in weight, 3lbs. would show the greater profit. I cannot tell you what nett profit can be looked for. With regard to obtaining a market, I think your best plan would be to interview some of the leading stores in London. London is the best market, but do not reply to advertisements which may appear from time to time in the Press. I wish our readers would take warning as to this. Only recently we have heard of some very bad swindles by advertisers of this kind, whose chief stock and trade seems to be in an imposing letter heading and a bankers' reference, which does not exist. Generally these individuals offer much higher prices than the reliable market salesmen.

C. H. B. (Rochdale). The preparation of fish meal you send me is quite a good one, and you could use it with the dried yeast at the rate of from 5 to 6 per cent. in the mash, thus, taking the formula you have: Four middlings, two bran, one maize, one Sussex ground oats, half fish meal and half dried yeast. The percentage of fish meal would be quite correct. Note the parts are by weight.

"Cheviot" (Roxburghshire). Some of the ingredients in the chick feed to four weeks old are far too coarse; this more particularly relates to the maize and wheat. Much of it would be wasted on account of its size. The quality is good, and it is a nice clean mixture, but too coarsely kibbled. Your bran is not a good sample, and I am afraid the results will not be satisfactory, if used in the proportion, so that I suggest that you use the dry mash with equal portions of the bran, instead of in the quantities indicated. Even in the stock mash as made up, there is a good deal of husk; presumably this is due to an inferior brand of Sussex ground oats being used. No, your bruised oats should not be fed in the mash, but would be better if fed as grain. The sample is quite good

S. F. W. (Somerton). March-hatched White Leghorns are far more likely to go into a chicken moult before Christmas than the April hatched; occasionally some of these latter will do so, too, if they are very precocious. I cannot tell you how long this chicken moult will last, but generally it is about six weeks. You will see my advice to feed them well after they begin to lay. Feed a more concentrated mash in order to avoid this moult.

J. B. (Clapton Park). If you have read my answer to "Coventry," and have the book "Chicken Rearing," I cannot give you any better advice than is contained therein. The only point which I wish to make is that you should be perfectly satisfied as to the quality of the bran and middlings which you are using. The bran should be the best broad bran, and the middlings the fine white middlings. If you cannot get really good broad bran, then reduce the proportions of the stock mash to equal parts.

"Sherlock Holmes" (Liverpool). The sample of middlings you send has been mixed with Pollard; there is no doubt of that. Should you not have been "Watson," and left the Sherlock Holmes to me.

"Suspicious" (Bexhill). The middlings have been mixed with Pollard, and are only a moderate sample. The clover is poor value at 17s., and I would not advise you to use it. The fish meal is good, and the ground oats are quite good value. The broad bran is inferior.

W. M. (Midhurst). I am afraid you must not attempt to put eggs in muslin bags under a hen. It would inevitably result in either a broken egg or a crushed chick. You could do this in the incubator, and it is best to do so on the 19th day. There is no method which is actually satisfactory of identifying the chicks under a hen unless you did not put the eggs down all at once—that is, put them down two or three days in succession, so that they hatch one after another. Thanks for your congratulations on "Eggs."

W. S. (Bromley). From your description I imagine your incubator is a Gloucester. The eggs do not require cooling; the actual turning is quite sufficient, and if you do this twice daily, that will be all that is needed. As you say the chicks which are dead-in-shell seem to have been dried down too rapidly. It would be better to supply moisture from the first, and not remove either the felts until the 19th day, then taking out one and leaving the other in. I think the best temperature would be to run at 104 degrees throughout for this particular machine.

A. B. (Cuckfield). With reference to the formula you give: 2½lbs. clover meal, 4lbs. bran, 5lbs. middlings, 4lbs. Sussex ground oats, 2lbs. meat meal, and 1½lbs. yeast. This is quite satisfactory, but rather expensive, and for egg production I would prefer to substitute 2lbs. of yellow maize meal for two of the Sussex ground oats, and to reduce the bran to 2lbs. Unless you have a very good sample of clover meal, I would not care to use it. This particular sample you send contains a good deal of the stalk and flower and comparatively little leaf. In fact it is very inferior. There is no value in the flower. It is just the product of an exhausted plant. It would be dear if you paid more than 10s. cwt. for it. A good sample of alfalfa meal would be better, as it is nearly all leaf. In a very short time we shall have the grass growing, when neither clover meal nor alfalfa will be necessary. In any case, 2lbs. of clover meal would be sufficient in your mash. You could substitute 1lb. of soya bean meal for 1lb. of the meat meal; that would make your formula cheaper, and should give equally good results. Your record for January, although not bad, was not particularly good. No, I certainly do not advise giving hens Epsom salts once a week in their water. The continuous use of Epsom salts is likely to lead to the withdrawal of the Calcium salts from the body, and this is most undesirable, especially with heavy laying pullets.

"Madame" (Lichfield). Presumably the White Leghorn pullets are suffering from layers' cramp. I do not think their eggs will hatch well, even if you incubated them; that is to say, this season. You will be well advised to feed them on a less stimulating ration. For the present do not give them any mash at all, but keep them quietly in a hamper on soft hay, and give a mild dose of Epsom salts. I quite appreciate they are amongst the very best layers. Birds which suffer from this trouble generally are. Give them green food and a little boiled rice, but do not give any animal food. They will be all right to bred from next season if you take care of them now.

C. J. W. (Bonnybridge). Your question as to how many hens it would be necessary to keep in order to make a living from them, is not a particularly easy one to answer, and it would depend on the methods employed. A clever pedigree breeder would easily make a good living from 250 head of stock, but on a commercial egg farm it would be an entirely different matter, and I do not think you could hope to make a fairly comfortable living under 1,000 birds. I gather that you have not had much experience, and I would advise you to go very slowly and gain experience, and not contemplate taking up poultry as a means of a livelihood yet. I think the ground at your disposal would not allow you to keep more than 40 to 50 birds, and it would be advisable to have them in alternate runs. The question as to whether you should use the out-house or build another house, would depend a great deal on the position of the former. Three square feet is hardly enough to allow per bird; you should make it 3½ at the minimum.

B. B. H. (Harrogate). No. 2 sample of dried milk at 40s. is not very satisfactory, and I am inclined to think there has been some adulteration. Of course, the other at 60s. is very uneconomic. I would not care to use No. 2 for either adults or young chicks. The sample of alfalfa meal is just average quality; a little too stalky. I do not think that if a male bird which was not suffering from B. W. D. mated to hens which had the complaint, and then mated to other hens, would transfer the baccilies to the latter. I shall have to publish, in another column, the best means of fumigating an incubator.

E. H. (Ringwood). I am inclined to think that the congestion of the food in the mouth of the two chicks which you sent is due to the fact that they are suffering from some congestion of the lungs, due to a chill. It would not be caused by the milk or any single ingredient in the food. The sample of milk you send seems perfectly satisfactory, but the sharps are simply awful stuff, absolutely useless for a poultry food, and the bran is no better. You cannot grow healthy chicks on such rubbish as this. The Poultry Uveco is not kibbled finely enough, and there would be a good deal of waste in it, otherwise it would answer the purpose. As you have sent one of the chicks to Capt. Leeney, you must await his verdict, but my opinion is this—it is a case of pneumonia, although I have not made any post-mortem; this is not my work. Bone meal will answer as well as bone ash. You will quite understand this mixture is not intended as a cure for all forms of leg-weakness. It only applies to that in which there is a lack of calcium salts in the ration. The hover you mention has proved very satisfactory. I cannot recommend a better. Your brooder houses should be all right; but, of course, I cannot express an opinion without seeing same, but I do not see why they should not answer perfectly. If your birds are running over two acres of grass, there is no need to give alfalfa, but do not use three parts of bran if it is such as the sample you send; better by far reduce it to one part.

(*We regret that many Answers to Queries are unavoidably held over*).

POST-MORTEMS.

M. H. This was a case of pneumonia from chilling. See other replies with regard to possibility of becoming infectious.

N. C. A. The chick was chilled, but not the subject of infectious disease. Some folk have a constitutional objection to conforming to any rules or regulations whatever, but one thinks that paying 3d. for unstamped letters is too much to deduct from a half-crown fee.

E. T. S. The Wyandotte hen had acute tuberculosis of the intestinal glands, and pneumonia at the finish.

T. W. It is a case of B. W. D., and the remaining few will scarcely be worth keeping, if they survive, because it is from such that the disease is passed on to the next generation. Have a clean up and disinfect thoroughly, and make a new start.

T. A. Y. The pullet died of internal haemorrhage from a ruptured liver, which was degenerate.

W. H. Post-mortem examination confirms your diagnosis as to the pneumonia, but it is unfortunately of the infectious kind (pneumomycosis), and every effort should be made to prevent its spread. Burn all bodies and litter used. Fortify with tonics. See other reports.

E. H., Ringwood. Infectious pneumonia and an auto-intoxication from the lungs is the cause of their staggering. "Half a scruple" or ten grains is not enough. Give 40 grains or two scruples to the gallon.

P. P. The chick was chilled, and the kidneys a deep purple, and the canal blocked.

A. H. The larger chicks had the infectious form of pneumonia (pneumomycosis), and the other was chilled, and had inflammation of the belly (peritonitis).

C. A. G. The heart and lung were acutely inflamed. A pasted vent is not peculiar to B.W.D., but a common symptom of digestive or other disturbance. The mucus of the bowel is always more viscid than that of the respiratory tract, and is disposed to adhere to the fluff around the vent. Glad you find interest in these replies, but only a tithe of them are published, as those which are answered by post do not appear in "Eggs." They would take up too much space.

K. W. The R.I.R. hen had pulmonary apoplexy. Yes, she had a very poor heart, and overloaded with fat. A fast of 24 hours, and fifteen grains of sulphate of magnesia daily, for a week, would reduce risk in her associates. Will other readers please note this reference to salines, and not write supplementary questions, and expect more letters. All I undertake for "Eggs" is to report the cause of death (if found), and it is quite impossible to carry on a correspondence class. Readers are asked to accept this notification, not as a complaint, but as an explanation of why some of their requests are not complied with.

G. L. S. The duck had inflammation of the heart, and its membranes, following on what would be called gout in mankind. There need be no suspicion of having "picked up anything" except in the sense of having picked up too much and too rich food, which predisposes to gout. There is an article in the Press on this subject, to which I would invite your attention, although it applies more to fowls than to aquatic birds.

P. Q. R. The chick had B.W.D. The subject is considered in an article in "Eggs" of the 20th February, which please see.

G. P. The White Leghorn hen had an enormously enlarged and degenerate liver (amyloid), a tuberculous spleen, and a dead yolk attached to the ovarium.

"Som." The R.I.R. hen was a perfectly healthy bird, and would have laid in a few days, although very much too fat inside. B. W. D. is a disease of the first week, and particularly of the first 48 hours. Adults may be carriers, but are not themselves affected.

S. T. Pneumonia from chill, confirming your diagnosis. A chick for examination should be put into a cigarette box, not as an ordinary letter in paper. This one was crushed flat, and diagnosis might have been rendered difficult when blood is mixed up with the viscera. One gets an infinite variety in the way of packages, from the simple paper to the multiple shrine of Tutankahmen-like proportions.

A. C. C. Both the chicks had greatly distended gall bladders, and the bile was thrown back upon the circulation. I do not know the cause—chill very likely—not a known infectious disease, or you would have been informed by post, according to the published rules which you seem not to have read. The non-conformists' letters and subjects are put one side until the conformists have been attended to. One cannot book half-crown fees all over the kingdom, and spend money in their collection.

A. M. T. I. One had acute pneumonia, and the other had inflammation of the kidneys. I should regard both cases as due to chilling.

X. Y. Z. Pneumonia from chilling.

J. V. T. It is a case of "weather" pneumonia.

C. H. C. Yes, there were laburnum seeds in the crop and proventriculus, and no signs of disease.

W. This mutilated corpse was very difficult to judge of. I wish you had sent it as it died. There had been no time to develop the characteristic symptoms of B. W. D., but I *strongly suspect it*, and can only prove by microscopic examination, and finding of the B. pullorum. In the well developed there are diagnostic appearances. This reply is written on the same day as received (Monday), but whether it can be passed and published in next issue of "Eggs," I cannot say.

"Raven." Pneumonia and peritonitis. In a word, chill. There was no sign of B. W. D. Thanks for the "conscious" humour which is in contrast to the gloom in which so many correspondents write. It shines "as doth a good deed in a naughty world."

I. W. J. There was no evidence of disease, although your losses are considerable. In my opinion they were simply chilled.

H. LEENEY.

DISEASES OF POULTRY.

By Capt. H. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

TUMOURS IN FOWLS.

In any attempt to describe these to the general reader, one must refer him to the dictionary as to its meaning, because, in the public mind, a tumour generally means something malignant, whereas to the surgeon it means any enlargement, temporary or permanent, benign or malignant. The Standard Dictionary, which, by-the-way, spells the word "tumor," defines its meaning as "a local swelling on or in any part of the body; especially from some morbid growth; sometimes a swelling due to ordinary inflammation." Within this broad definition will come a swelled face from toothache in the man, or roup in the fowl, and *all* the tumefactions arising from injury or from neoplasms, fibrous, fatty, parasitic, cancerous; and of accumulations often referred to as egg-tumours, when it is meant that morbid masses of what was originally egg material, have been compressed and converted into morbid deposits or growths.

Fowls are peculiarly liable to tumours, tumours in the wide sense explained above. One of the causes, which I have never seen alluded to by anyone else, is the invariable condensation of an abscess wherever it occurs, inside the bird, or in the flesh of any portion of its anatomy. In man and beast an abscess usually follows a definite course. The pus in it takes the least line of resistance, with a view to getting out, and if caused by a thorn or other foreign body, of carrying that exciting cause with it. It "points," as it is called in surgical language, that is to say, its pressure induces absorption of the muscle and of the skin until a thin place or slightly pointing portion indicates the use of the lancet, or failing such relief, breaks during some movement of the sufferer, or some knock against it. The abscess of strangles in horses will best supply an example to the farmer reader. It may not be going too wide of my subject to say here that strangles abscesses that break of their own accord generally "piece-up" better than those that are lanced, as they too often are, prematurely. This was brought home to me on one of the ship loads I had charge of during the Boer War when I was conducting 800 horses from Canada, and more than 400 had strangles at sea, and we went round daily with a bucket taking away gallons of pus. In a bird, domestic or wild, this never takes place. Did the reader ever see a roup abscess break? No, he will have seen them grow smaller, and the sight "come again," as he would say, but that occurs through the condensation by absorption of the fluid elements, and the reduction into a cheese-like, or even calcareous state, and the restored ability to open the lids of the eye.

It is the same with the feet. A bumble foot does not break and get natural relief, but it contracts in size merely.

This being so, it may be taken as a broad rule that any tumour in a fowl must be operated upon, either by releasing the fluid while still in the liquid state, or by digging out when condensed. Applications of iodine or other absorbents do nothing more than promote the removal of the more watery portions of the tumour.

For any statistics worth studying we have to resort to reports by American authorities, whose methods command our admiration. At the Maine Agricultural Experiment Station a post-mortem examination was made of every bird killed or dying a natural death over a period of several years, and nine hundred records have been kept, showing in what organs the tumours were situated. The *high* proportion of tumours will surprise many readers, when it is remembered that these were not all birds showing disease, but included all that were killed for the table, or as past the profitable period as layers. In these there were ninety cases per thousand which had tumours of some sort or other. It may be that the high temperature of birds, as compared with mammals has something to do with it—your deponent knoweth not. The genital organs of the female were easily first, 37 per cent. were ovarian, and 19 per cent. in the oviduct or "uterus," as it is now the fashion to call the tube in which the yolks receive those additions which result in the perfected egg as we know it. The proportion as seen by the ordinary observer would not be so great, as any dead or perverted ovum would be dubbed a tumour in such a record, while the amateur would apply the term to something large and obstructive, and of these he would find many more in the duct than in the ovarium or clutch. Twenty-two were in the peritoneal investing membrane of the abdomen and intestines, or the mesentery. The records do not tell us of the numbers found in the spleen and kidneys, or the liver, but such as are found in those organs are generally multiple. The deposits of tuberculosis which are so frequent in the spleen and liver also occur in the heart, and practically every other organ, and in the walls of both chest and belly. Tumours in birds follow the rule in mankind, and occur much more frequently in advanced age than in the young. This applies even to the egg tumours previously alluded to, and they are of much more frequent occurrence now than formerly when it was not recognised that prolificacy is an hereditary quality. We have, in fact, to pay for our fancy in cultivating laying strains. Those that break down are better dead, for we wish to breed from such as can transmit their valuable qualities, together with constitutional strength.

Of four thousand fowls dressed for table at a great hotel, there were only found seven with malignant tumours, or such as would be commonly called cancerous. All of these were in hens over a year old. The surprising thing to me, as one who makes thousands of autopsies in a single year, is the absence of all signs of ill-health in birds that must have had these tumours for a long time. Nothing is more common than to get a letter saying that the subject of it was found dead on the dropping board, or in the nest without any apparent deviation from health or absence at roll call. The sender suspects poison. The examiner finds a growth that may be months old. The acceptance or rejection of a table fowl is habitually left to the cook, who may recognise some of the grosser lesions, as "not good," but there must be many a tuberculous fowl finds its way to the dining table. Fortunately there are no disease germs that can stand the heat required to roast or boil a fowl properly.

A POULTRY FARM FIRE.

We regret to hear that Mr. Fitton, of the Deansgate Poultry Farm, Freshfield, Liverpool, sustained a very serious loss on Wednesday, February 20th. A fire broke out in his brooder and incubator house, and, despite the fact that the Fire Brigade were quickly on the spot, there was only the ruins for them to deal with, so fierce was the outbreak. The brooder house and the incubator house were burnt to the ground, and the loss includes 300 chicks, 600 eggs, five brooders and six incubators. Unfortunately for Mr. Fitton, the property was not insured, and much sympathy is felt for him, as the damage is estimated at about £250.

We are asked to state that Mr. Fitton cannot write and inform all those who have ordered eggs and chicks, as their addresses were burnt in the fire, the office adjoining the incubator house. He regrets that he cannot supply them this season.

SOME FRUIT GROWING NOTES TO HELP POULTRY-KEEPERS

By F. W. WHEELER, F.R.H.S.

Continued from page 178.

To go back to the question of probable harm to poultry—let me say at once that I do not think that there is cause for alarm. I have not heard of any cases, and have not noticed any myself.

The Arsenate of Lead spray mixture is, I think, the most poisonous of those in general use, and if anything would cause harm it would be this: usually applied during May to destroy the caterpillars of the codling, winter or mottled umber moth.

To be effective for its work it ought to be used when the caterpillars are very small, and then the dose that kills is minute. If caterpillars are allowed to get large before spraying, it is not likely that the chemical will kill them, and so the birds would only eat unpoisoned insects.

I took a good deal of trouble a few years back to enquire extensively into this question of poultry and other live stock under sprayed fruit trees, with the result that the general opinion amongst those qualified to speak was to the effect that no harm need be feared. I also wrote to Wye Agricultural College, and they replied later in the year saying they had tested the point with poultry but did not find any evil results from the experiment.

If one is dealing with a very bad case and giving an extra drenching with the spray to some neglected or old trees that have got a bad attack of blight, then I think, under these special circumstances, one ought to take all reasonable precautions, such as removing the water troughs likely to catch much of the surplus spray which would drop from the trees. When possible pigs or poultry might be removed from the runs for about ten days, but I know the difficulty of moving birds in lay and that it is almost out of question, unless there are alternative runs to the houses and into which the birds could easily be diverted for a short time.

I have never remarked in previous articles that spraying required for killing caterpillars is likely to be a very rare or light job on a poultry farm, because the birds will keep these pests almost entirely in control, and it is just one of many arguments why the combination of fruit and poultry could be run for mutual money-saving advantages.

THE LANCASHIRE UTILITY POULTRY SOCIETY.

INTERNATIONAL EGG-LAYING TEST, 1923-24.

Report of the Fourth Month—January 8th to February 4th, 1924.

HEAVY BREEDS.—SECTION 2.—LARGE BREEDERS (10 Pullets).

Pen. No.	Position.	Owner of Pen.	Pen Totals to Date. Eggs.	Points.
9	1	Rodwell, R., Nelson	765	730
2	2	Crabtree, W., Twiston	712	690
5	3	Gabbott, H., Little Hoole	656	614
18	4	Hull, J. R., Thornton-le-Fylde	569	604
10	5	Rogers, W., Market Drayton	605	612
13	6	Thompson, J. & W., Inskip	619	602

LIGHT BREEDS.—SECTION 1.—LARGE BREEDERS (10 Pullets).

35	1	Metcalf, G. B., Lechlade	629	624
23	2	Aspden, R. H., Balladen	646	610
40	3	Snowden, F., Cowling	618	603
38	4	Rodwell, R., Nelson	601	585
44	5	Walmsley, A. R., Hollowforth	579	580
34	6	Hollins, C. H., Chorley	578	575

HEAVY BREEDS.—SECTION 4.—SMALL BREEDERS (5 Pullets).

57	1	Helm, J. E., Rossendale	378	387
62	2	Purdie, J. & W., Lanark	376	362
56	3	Greenall, S. & J., Carlton Scroop	326	336
66	4	Sudell, G., Bartle	343	310
53	5	Collier, E., Ingol	312	300
52	6	Clarkson, W. W., Haighton	270	284

LIGHT BREEDS.—SECTION 3.—SMALL BREEDERS (5 Pullets).

77	1	Budd, C. F., Abergavenny	356	349
84	2	Johnstone, Capt. E. B., Kingston H.	332	323
91	3	Purdie, J. & W., Lanark	318	325
83	4	Ingham, J., Widnes	346	322
89	5	Paul, Miss A., Coupar Angus	319	319
97	6	Threlfall, B., Churchtown	318	304

HEAVY BREEDS.—SECTION 6.—OPEN (Single Bird).

Bird No.				
1015	1	Cook, R. N., Tarleton	72	83
1008	2	Rainford, J., Penwortham	70	75
980	3	Cockshott, Mrs. F., Skipton-in-Cvn.	70	70
979	4	Crawford, J., Hurlford	70	72
1002	5	Wright, R., Kirkburton	66	71
986	6	Hollins, C. H., Chorley	67	66

LIGHT BREEDS.—SECTION 5.—OPEN (Single Bird).

1040	1	Wallis, A. V., Oxon	68	72
1029	2	McComb, J. S., Bracknell	68	68
1038	3	Sutton, J., Much Hoole	69	67
1030	4	Rainford, J., Penwortham	63	62
1016	5	Atkinson, T., Burton-in-Lonsdale	65	62
1113	6	Gonne, Capt., Ringwood	58	62

BREED AVERAGES AND SUMMARY.

Breed.	No. of Birds Entered.	4th. Month.		This Month's Averages.	Total to Date.		Averages to Date.
		Eggs.	Points.	Eggs.	Eggs.	Points.	Eggs.
W. Leghorns	516	7068	7314	13.70	25160	24748	48.75
W. Wyandottes	329	5150	5263	15.65	17102	16791	52.0
Rhode I. Red	125	1812	1887	14.50	5384	5541	43.0
Black Leghorns	56	724	745	13.0	2581	2565	46.0
Anconas	24	329	349	13.70	874	1021	36.0
Light Sussex	19	179	185	11.93	553	555	37.0
Australorps	10	40	38	4.0	201	192	20.0
Excheq'r Leghorns	6	56	54	9.33	190	185	31.66
Brown Leghorns	9	63	62	7.0	211	208	23.44
Barnevelders	10	112	128	11.20	124	141	12.40
Buff Rocks	12	222	239	17.0	732	764	55.30
Blue Mendal	4	41	43	10.0	96	99	24.0
Black Mendal	4	28	28	7.0	118	112	29.50

CHARLES PARKER, Secretary.

Fox Street, Preston.

EGG LAYING TEST.

COUNTY POULTRY FEDERATION'S COMPETITION.

The report for the fourth month, January 13th to February 9th, in the Lancashire Federation of Utility Poultry Societies' 12 months egg-laying competition has just been issued by the Secretary, Mr. E. Collier. The light breeds are penned at Mr. H. Hayes' Farm, Tottington, who reports three deaths. The weather has been very severe again, and nine birds are being treated for colds.

The heavy breeds are penned at Mr. W. Hamnett's farm, Blackpool, who reports all the birds in good health with the exception of one, a few are moulting, and eight have been broody during the period. Twenty-four birds have laid 20 eggs or over. Five have not laid during the month, and these are Wyandottes which are in moult. The highest record to date has been made by R.I.R. No. 112, with 90 eggs, closely followed by Wyandotte No. 37, 88 eggs. Two birds have laid 85 each, three 84, 82, 81 each, thirteen 70 to 80 each, ten 60 to 70 each, and twelve over 50 each, all Wyandottes. Seven R.I.R. have laid 70 to 80 each, and seven of the same breed from 50 to 70 each. The scoring is six points for a first grade egg, the weight of which is increased this month to 2oz., and five points for a second grade egg, which must now weigh 1¾oz. The position are as follows, the figures showing number of eggs and points respectively:—

LARGE BREEDERS' SECTIONS.

LIGHT BREEDS (Three Birds).

Pos.	Owner.	Eggs.	Points.
1.	W. Braithwaite	162	909
2.	S. Street-Porter	151	864
3.	W. Barron	148	848
A4.	J. Shaw	159	812
5.	R. Mills	137	806
6.	R. Rodwell	135	767

WHITE WYANDOTTES.

1.	R. Moon and Son	200	1184
2.	W. Barron	232	1157
3.	R. Rodwell (1 B.)	200	1151
4.	C. C. Humber	194	1085
A5.	T. Gardner (1 B.)	188	1058
A6.	R. H. Aspden (2 M.)	164	984

A.O.V. HEAVY BREED.

Pos.	Owner and Breed.	Eggs.	Points.
1.	W. Wearden and Sons (R.I.R.)	208	1247
2.	T. Braithwaite (R.I.R.)	201	1074
3.	R. Green (R.I.R.)	168	1006
4.	J. Rainford (R.I.R.)	180	993
5.	R. Moon and Son (R.I.R.)	152	886
A6.	Kay Diggle (R.I.R.)	141	802

SMALL BREEDERS' SECTIONS (Single Birds).

LIGHT BREEDS.

Pos.	Owner.	Eggs.	Points.
1.	F. and H. Evans	42	247
2.	H. Tattersall	41	240
3.	J. Smith	39	234
4.	F. and H. Evans (M.)	39	222
5.	J. Higson	34	196
6.	A. Spencer	29	172

HEAVY BREEDS.

Pos.	Owner and Breed.	Eggs.	Points.
1.	W. Fletcher (W.W.)	81	443
2.	T. B. Price (L.S.)	53	314
3.	S. B. Lonsdale (B. M.) (W.W.)	48	270
4.	A. Spencer (W.W.)	56	256
5.	W. J. Swarbrick (B.) (W.W.)	46	254
6.	H. Ball (R.I.R.)	41	246
6.	Miss S. Cautley (L.S.)	44	246

REARING.

By JOHN MEEKINGS.

Two important months in another rearing season have come and gone—a period of extreme weather conditions, calling for the utmost skill and emphasising afresh the need for a method proof against such abnormal influences. It is becoming an art to rear the progeny of highly-fecund birds with success during the winter. Since Christmas I have received numerous requests for advice on this all-important subject, and I regret that so many of our readers are experiencing such difficulties when apparently so unprepared to face up to them. Undoubtedly the extreme weather, bringing northerly and easterly winds, with sudden changes in temperature, is responsible for much of the disaster; but I would point out here, that if early hatching has to be practised, the system of artificial rearing must be proof against adverse climatic conditions.

The method used for the rearing of chicks is the most important factor. It is an unnecessary waste to take from the incubators strong, healthy chickens, and place them in brooders or foster-mothers, which I am sorry to say are either over or under heated, and often insufficiently ventilated. The modern chick is undoubtedly a bundle of nerves and requires the most careful treatment during the first week of life. I am inclined to think that it would be better for chickens to remain perfectly quiet in a comfortable and well-aerated chamber for the first three or four days, rather than to insist upon frequent small feeds and constant exercise. Chicks with hens are very rarely seen for the first few days, especially in bad weather, unless the mother herself is highly nervous, in which case she jeopardises the health of her flock, sending the operator crazy!

Why is it that so many chickens die each season, showing symptoms of diarrhoea? Mainly due, I think, to chills during the first seventy-two hours or to overheating, either in the incubator or brooder. It appears almost an impossibility to strike the happy medium. The result is: the digestive organs are immediately upset, the chicks begin to die; some of the corpses show distended crops and abdomens, while others appear starved. Lack of fresh air will bring about exactly the same state of affairs as above. How is one to avoid these pitfalls?

May I point out the necessity of having your brooder conditions as ideal as possible some hours before the chicks are ready to be put in? Brooders should register a warm and regular temperature, which should be maintained as easily during the night as in the day. The brooder house temperature is as important as the temperature under the brooder itself. I consider a brooder house temperature which is allowed to fall below 40 degrees or to rise above 60 degrees a danger to the chickens. In the first case, the temperature beneath the hover will drop far below the normal, and in the second, there is the danger of overheating. It is very necessary to run auxiliary heat, and so avoid those drops in temperature, which result in disaster to the flock. During warm and muggy weather great care should be taken to ventilate the brooder houses as much as possible. I am of the opinion that the artificial brooding of chicks requires thorough re-organisation, and that a standard method should be placed at the disposal of the poultry fraternity at the earliest possible moment. In fact, I venture to say that unless this is done this industry will never develop as it gave promise of doing.

Successful brooding is, of course, closely associated with healthy, vigorous stock and correct incubation. In-breeding and heavy egg production is undoubtedly responsible for much of the mortality. From observation, I cannot agree that feeding plays a very important part during the first few weeks of the chick's life; given the right environment, it is wonderful what chicks will thrive on, but once upset the internal anatomy and the most expert feeding knowledge will be of little avail.

I consider the following points should be closely observed during the first days of brooding:—

(1) Great care should be taken that the atmosphere into which the chicks are hatched should be a normal one—that is to say, a temperature round about 100 deg. Fah. should surround the chicks until they are perfectly dry and able to stand. The flow of air into the machine should be clean and round about 60 deg.

(2) Chicks should not be moved for at least 24 hours after they are hatched, and then quickly transferred in warm boxes to the brooder. This is a critical juncture, and the operator must satisfy himself that the chicks are quite comfortable before he leaves them. Chicks are the best thermometers; by the position they occupy one can quickly tell if they are too warm, or otherwise. I so often see chicks forced by a cold brooder house atmosphere right into the over-heated air immediately surrounding the lamp or stove. Little wonder then if in a few days the chicks droop and die off.

(3) The brooder house should be proof against frost, which at this time of the year is so very prevalent. For the major portion of this season I have used extra heating in my brooder houses during the early stages to keep the temperature above 40 deg. By so doing I have maintained a comfortable state of affairs beneath the brooder. During the daytime, when the outside temperature is higher and on the few occasions when the sun has shone, the house has been freely ventilated and all extra heat cut off.

(4) After the first week every effort should be made to get the chicks out on "terra firma," bad weather notwithstanding. The longer this is delayed, the greater the risk to the health of the chicks. We make a point of feeding mash and grain in the runs, as also the drinking water, and so force the chicks to take exercise in the pure air.

The chicks very soon grow to love being in the open air, and will spend the greater part of the day roaming round the pens; this has obviated leg weakness and other minor ailments which affect chicks during the first weeks.

It has been my boast that once the eighth day of rearing has passed my mortality is practically nil. If, however, the chicks have suffered chill during this period, very few survive a month's weary existence, and are valueless to their owners. Chicks should be so carefully fed, once the first week is passed, to insure a good covering of meat over the breast and on the thighs. Ragged, lean chicks are the product of faulty and injudicious feeding, and will grow slowly and rarely attain to full maturity.

Rearers should educate themselves for this difficult task—give unsparing attention at all times to the chickens. Unless this is done, chick mortality will rise and the failures increase.

Correspondence.

FLOCK AVERAGES.

To the Editor of "Eggs."

Sir,—With reference to the recent letters on flock averages. The method used by the Hollywood Farm, in America, seems to be the simplest. This is to count the number of birds in a house as the number it contains on the 1st of October, no matter what birds are taken out afterwards, through illness or breakdown, etc. In this way a high flock average also means a high standard of health.

If at any time the birds are sold from a house, the number of eggs per bird to that date can readily be ascertained, and eggs laid afterwards are then divided among the lesser number.

Under the usual systems, should there be an outbreak of, say, roup on a large scale, and the affected birds disposed of, the flock averages is as high as for a perfectly healthy pen. This surely is wrong.

It would, however, greatly assist breeders and buyers if the S.P.B.A. would officially sanction *one* method of calculating these averages. At present one does not know by which of the many methods they are calculated.

Yours faithfully,

P. WASHINGTON.

INCUBATION.

To the Editor of "Eggs."

Dear Sir,—I saw in a recent issue of "Eggs" some peculiarities in the results obtained using tank and hot-air incubators in certain localities. I thought that the peculiar results I have been getting may be of some interest, as they seem to partially correspond with the case where the tank incubator would not work while a hot-air one gave no trouble.

Last season I brought two "C.A.S.H." hot-water incubators, and after trying them got only under 50 per cent. hatches and always one to four days late. I kept raising the temperature till I got sprawling legged chickens, but it did not hasten or improve the hatches.

Few eggs were addled. All died about the 19th day. The makers advised more moisture and to put in the earth quite wet, but that only made matters worse. The dead eggs were always full up in the shell and surrounded with unabsorbed albumen, and many would be still alive with the allantois in full function several days after the hatch was due. Personally, I began to think that too much moisture was the trouble, and the makers advised airing for five minutes.

I only managed to try that recently, and as I had a hot-air machine set along with the other I kept comparing air spaces, and found on the 14th day the space in the eggs in the tank machine was no bigger than that in the hot-air machine on the 5th day, even with airing. I then aired, not five, but fifteen minutes, and removed the muslin. The hot-air hatched up to time, and I transferred all the eggs from the tank to the hot-air, on the 20th day that the tank machine had run.

I got the first chick at the end of the 21st day, about three dozen by the 22nd; two came out on the 23rd. I took the eggs out then, and found five still alive, not ready to hatch. They were put back, and on the 26th day two actually came out, and another chipped on the 27th day!

It was far the best hatch I had from the "C.A.S.H." machine—over 80 per cent. of fertiles and 10 per cent. better than the hot-air, which addled a good many eggs but had few dead-in-shell.

This result convinced me that too much moisture was the trouble, and now I will try making the earth nearly dry before setting, and will not air unless it seems necessary.

I should be interested to know if any other users of "C.A.S.H." incubators, who may happen to read this, have had peculiar results, and, if so, if they managed to correct them.

Yours faithfully,

V. O. GRAY.

L2 FACTOR.

To the Editor of "Eggs."

Sir,—I have recently had occasion to consult Pearl's original papers on Fecundity, published when he was on the staff of the University of Maine, U.S.A. I have been struck by the fact that, in stating his results, Pearl more than once declared that they were limited to the breeds and strains then existing at the Maine Station. This proviso is strongly expressed in regard to the statement of his now famous hypothesis of sex-linked inheritance of fecundity. It is well-known that, subsequently Goodall working on Rhode Island Reds found that the theory was not confirmed in the case of the strain with which he worked. But there is another and perhaps more important particular in regard to which Pearl's results must be received with caution. His main hypothesis is based on an assumption that fecundity is wholly dependent on performance during four winter months. Again, this assumption has been queried by Hurst.

I suggest, therefore, that little progress in testing Pearl's work can be made until this question of the weight to be given to winter laying is cleared up. And it cannot be cleared up by mere statements of opinion. Figures must be produced which will stand testing by scientific methods. Such figures can be obtained by the analysis of the Laying Trials which have been held during the last ten years. It would be a laborious, but simple, task. All that is required are figures showing for a large number of individual birds the number of eggs laid during each month of the year. If such figures were submitted to an expert statistician, he can declare whether fecundity is correlated with the performance in individual months. Could you not, Sir, assist in this matter?

Yours faithfully,
M. A.

14, Hills Road, Cambridge.

ANTHRACITE STOVES.

To the Editor of "Eggs."

Sir,—Your correspondent, Mr. Ogilvie, assumes that I do not know how to manage my brooder stoves. Although I have not been working them for fifteen years, as Mr. Ogilvie states he has done, I have had a great deal of experience with them during the last six years, and have had several in use during this period throughout the rearing season.

As regards fuel, I use best washed and hand-picked Anthracite nuts, and my brooder houses are as dry as any other building could be during the winter where a fire was not kept. All my brooder stove chimneys are high, and are, of course, provided with caps. My own experience of the poor-wearing qualities of brooder stoves has, I am certain, been that of many other poultry-farmers.

I was beginning to think I knew practically all there was to know about the management of brooder stoves. Evidently I am mistaken, and, perhaps, your correspondent may be able to give me a few tips from his vast experience, as to how they should be run. I gather from his letter that he possesses special knowledge of this subject, and I am sure there must many other users beside myself who will be glad to avail themselves of Mr. Ogilvie's advice.

Yours faithfully,
F. C. ATKINS.

February 23rd, 1924.

POULTRY FARMING IN SOUTH AFRICA.

To the Editor of "Eggs."

Dear Sir,—I wonder if any of the thousands of readers of "Eggs" can give me some information about Poultry Farming in South Africa. I intend running a pedigree breeding farm shortly, and am considering the pros. and cons. for doing this in that country rather than in our already over-crowded island, with its far from salubrious climate, and ever-recurring strikes.

I want to know whether there is a good or better opening out there for pedigree work, and whether more or less capital would be required. Possibly one of your readers will be able to answer this, and also to give me an idea of comparative costs of food, timber, etc., and prices of eggs and poultry, and the information will be much appreciated.

Yours faithfully,
L. ASHENDEN,
Manager, Milestone Egg Farm.

Patrixbourne, Canterbury.

SEX-LINKED INHERITANCE.

To the Editor of "Eggs."

Dear Sir,—In a recent number of "Eggs" I saw it stated that the Exchequer Leghorn counted as a silver breed for the purpose of Sex-linked Inheritance. You may be interested to know the result of a cross I have just tried, viz.:—a R.I.R. cock and Exchequer hens. All the chicks came out identical in appearance, i.e., black all over, shading off into dark chestnut. The black in the composition of both birds swamps all other colours. I doubt whether the Exchequer is really a silver breed.

Yours faithfully,
W. A. SALTER.

IMMUNITY.

To the Editor of "Eggs."

Dear Sir,—Reference your article on Immunity in "Eggs" of February 20th, I beg to express surprise that you should make such a statement as the following :—"To my mind, this (natural immunity) is the most practical way of fighting disease, for I have no faith in vaccines, serums or drugs." Such a statement coming from your pen bears with it a tremendous responsibility and most naturally discourages from using your journal as an advertising medium those firms who offer vaccines, serums and drugs in the conscientious belief and persuasion that these remedies are, at the present moment, the most efficient known in combating the diseases mentioned by you—Avian Diphtheria and B.W.D. These firms can no doubt support their beliefs by practical testimonials. May I, through the medium of your columns, ask you to explain your assumptions by figures which might put the case a little more fairly for those who read you articles and accept them "per se" as gospel truth without enquiring into the statistics.

Yours, etc.,

MALCOLM McLAREN.

February 25th, 1924.

We accept full responsibility for what was written, and will reply to Mr. McLaren in next week's issue.—(Editor.)

THE MIDLAND AGRICULTURAL AND DAIRY COLLEGE.

POULTRY CONFERENCE.

Sutton Bonington, Loughborough.

During last year a small Poultry Conference was organised for the Poultry Instructors in this area, and a few private residents, and was much appreciated.

It has been decided to hold a small conference on Wednesday, March 26th, 1924, and Mr. F. W. Wait, of Burton Joyce, has kindly agreed to open a discussion on "Present Methods of Rearing. Are they Satisfactory?"

The conference will commence at 2.15 p.m., and will probably finish about four o'clock.

I cordially invite you to attend and bring yith you any friends you may desire to be present.

Yours faithfully,

THOS. MILBURN, Principal.

P.S.—Tea will be provided at the College for those who wish to partake of it at a charge of 9d. per head.

EGG LAYING COMPETITION.

BARROW UTILITY POULTRY SOCIETY.

The fifth period of four weeks of the egg laying competition promoted by the Barrow-in-Furness and District Utility Poultry Society has just been completed. It is under the management of Mr. G. B. Tootall, at Thorncliffe Poultry Farm, Barrow, who reports that the health of the birds remains good, and all are in fine bodily condition. The feeding is unaltered from the past three months, though if the present weather continues, some slight adjustment of the mash will be advisable. There is still one bird to make her first contribution to the egg basket (No. 42). The method of scoring is as follows:—Eggs, 2oz. or over, first grade, 10 points; 1½oz. and under 2oz., second grade, 8 points; eggs under 1½oz. do not score:—

SECTION I.

Owner and Breed.	Eggs.	Points.
J. Tyldesley (W.W.)	21	210
W. Satterthwaite (W.W.)	21	206
J. Barnes (W.W.)	20	194

SECTION II.

A. Fawcett (W.L.)	22	210
T. B. Grice (W.L.)	19	180
Miss M. Newton (W.L.)	16	160

SECTION III.

Owner and Breed.	Eggs.	Points.
T. B. Grice (L.S.)	21	210
T. B. Grice (R.I.R.)	21	210
J. J. Fisher (R.I.R.)	20	196

SECTION IV.)

W. Atkinson (O.E. Pheasant)	19	188
A. Fawcett (Ancona)	17	170
P. W. Davies (Ancona)	15	148

Leaders in each Section for the 20 weeks.

T. B. Grice (W.W.)	92	918
T. B. Grice (W.L.)	86	766
Hon. M. Cross (Buff Orp.)	82	784
Hon. M. Cross (Ancona)	58	570

J. GRAHAM, Secretary.

10, Romney Road, Barrow-in-Furness.

NATIONAL EGG-LAYING TEST.

Report for the Third Month from 27th December, 1923, to 25th January, 1924.

Mr. J. N. Leigh reports no real improvement in the weather conditions, but the egg production has steadily increased, the average for the month being 13.09 eggs per bird as compared with 10.25 the preceding month. Heavies continue to show their superiority as layers during the unfavourable weather. The average production for the three months works out at 32.83 eggs per bird as compared with 28.57 in the case of the light breeds.

White Leghorns have, on the whole, done indifferently up to the present, and their record is ten eggs per bird below that of the White Wyandottes.

Comment is made of the very poor condition and lack of size in so many of the White Leghorns on arrival, and their indifferent performance is attributed almost entirely to this.

Size of egg has considerably improved, the most marked improvement being amongst the White Leghorns, which, at the outset, were serious offenders. The minimum weight of second-grade eggs has now been raised to 1¾ ozs. The percentage of under-weight eggs is now very high, the Australorps specially offending in this respect.

The highest pen record for the month was 110 eggs, the figure reached by three pens.

In the Championship Section no very good pen scores are shown, but the average production in this section was above that of the test flock, the record being 15.43 per bird as against the general average of 13.09.

Generally the health of the test flock has been good.

EGG PRODUCTION—LEADING PENS.

Pos.	Owner of Pen.	Total.	Test Score Value.
	Section 1.—Championship (10 Pullets).		
1	Snowden, Frank	487	480
2	Metcalfe, Few and Co., Ltd.	476	473
3	Bradbury, W.	438	438
4	Rogers, Warwick	407	406
5	Rodwell, Richard	396	394
6	Parsons, S. and J.	379	377
	Section 2.—White Leghorns (5 Pullets).		
1	Metcalfe, G. B.	292	279
2	Welch, F. R.	267	267
3	Knight, Mrs. E. M. L.	253	252
4	White House Poultry Farm	251	251
5	Baxter, David	242	242
6	Golden, W. M.	231	231
	Section 3.—Black Leghorns (5 Pullets).		
1	Snowden, Frank	271	268
2	Moore, J. and A.	238	238
3	Hodkinson, J. H.	237	235
4	Berry, P. K.	218	218
4	Hood and Sons, H. G.	218	218
6	Margerison, J.	214	214

Section 4.—Non-Sitting Breeds (5 Pullets).

Pos.	Owner of Pen	Total.	Test Score Value.
1	Thompson, J. H.	198	197
2	Reed, R. B.	186	186
3	Cayley, Vice-Admiral C.	170	170
4	Kingscote, Major E. T.	154	154
5	Sandbach, Colonel S.	145	144

Sub-Section 4a.—Exchequer Leghorns.

1	Cayley, Vice-Admiral C.	170	170
2	Outhwaite, Sam	132	128
3	Bloom, D. G.	76	76

Section 5.—White Wyandottes (5 Pullets).

1	Clay, Mrs. M. E.	289	289
2	Eves, Harry	284	279
3	Cross, C. G.	277	277
3	Simmons, G. Keith	321	277
5	Crabtree, Walter	278	273
6	Rayner, G. H.	266	266
6	Seddon, Harold	267	266

Section 6.—Rhode Island Reds (5 Pullets).

1	Salt, W. and T.	294	293
2	Gawthropp, Arthur	242	242
3	Kingscote, Major E. T.	228	223
4	Berry, P. K.	263	218
4	Tresham, Guy	219	218
6	Hodgkinson and Son, R.	219	217

Section 7.—Sussex (5 Pullets).

1	Bradbury, W.	239	239
2	Thomson, C. L. and J. A.	196	196
3	Coaley Poultry Farm, Ltd.	182	182
4	Kincaid-Smith, Brig.-General K.	245	181
5	Drew, W. P.	173	172
5	Rossall-Stanford, F.	172	172

Section 8.—Sitting Breeds (5 Pullets).

1	Skinner, Miss K. B.	318	312
2	Fowler, Miss M.	260	257
3	Bell, Miss Harrison	252	251
4	Wright, A.	233	233
5	Kemp-Gee, A. M.	211	210

Sub-Section 8a.—Austral Orpingtons.

1	Parsons, H. R.	154	154
2	Adams, Hon. Mrs.	208	149
3	Australorps Farms, Ltd.	143	128

Sub-Section 8b.—Buff Rocks.

1	Bell, Miss Harrison	252	251
2	Wright, A.	233	233
3	Kemp-Gee, A. M.	211	210

Sub-Section 8c.—Orpingtons.

1	Fowler, Miss M.	260	257
2	Simpson, Mrs. K.	201	200
3	Sandbach, Colonel S.	198	195

HANTS COUNTY LAYING TRIALS.

FARM INSTITUTE, SPARSHOLT, WINCHESTER.

Report for fourth period ending February 15th, 1924. Only 80 second grade eggs count in each pen:—

SECTION A.

Tem. Pos.	Owner and Breed.	Total	Total for Test.
1.	Mr. D. Dunston (W.L.)	140	137
2.	Mr. R. H. Hunter (W.L.)	140	132
3.	Mr. R. McKenzie (W.L.)	126	115
4.	Lieut.-Col. Wailes (W.L.)	111	110
5.	Mr. C. F. Rivaz (W.L.)	104	103
6.	Mr. S. Wilkinson (W.L.)	106	101

SECTION B.

Tem. Pos.	Owner and Breed.	Total	Total for Test.
1.	Mr. J. H. Thompson (W.W.)	192	180
2.	Capt. Harper (R.I.R.)	197	177
3.	Mrs. J. H. Drew (Buff Rock)	210	156
4.	Mr. S. Wilkinson (W.W.)	143	141
5.	Barford Poultry Farm (R.I.R.)	136	136
6.	Mr. D. Gunston (W.W.)	143	131

KEIGHLEY AND DISTRICT BRANCH OF THE SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

LAYING COMPETITION.

The fourth month of Test concluded on February 20th. The birds are all in perfect health. There has been several cases of broodiness, notably No. 64, which has been broody three times since the commencement of the Test. Eggs weighing 2ozs. and over count as first grade, and under that weight are termed second grade:—

LIGHT BREEDS.

Pos.	Name and Breed.	First Grade.	Second Grade.	Score Value.
1.	Will Bancroft (Ex. L.)	69	1	70
2.	S. Preston (W.L.)	64	1	65
3.	S. Lawton (W.L.)	63	—	63
4.	H. Kershaw (W.L.)	61	—	61
5.	S. Lawton (W.L.)	58	—	58
6.	Capt. Owen (W.L.)	54	3	57
7.	Edwin Smith (Ex. L.)	53	2	55
8.	W. Robinson (W.L.)	38	10	48
9.	Mrs. J. R. Thompson (W.L.)	47	—	47
10	Frank Snowden (W.L.)	46	—	46

HEAVY BREEDS.

Pos.	Name and Breed.	First Grade.	Second Grade.	Score Value.
1.	H. Downsbrough (W.W.)	77	—	77
2.	S. Lawton (L.S.)	69	—	69
3.	J. Ellison (Red)	67	—	67
	H. Kershaw (W.W.)	61	6	67
4.	Mrs. Barker (W.W.)	58	2	60
	H. Nelson (W.W.)	57	3	60
5.	H. Rawlinson (W.W.)	52	7	59
6.	A. Holroyd (Red)	57	1	58
7.	H. Dixon (W.W.)	53	4	57
8.	F. Hodges (Red)	55	—	55
9.	S. Preston (Buff Rock)	52	1	53
	H. Rawlinson (W.W.)	41	15	53
10.	S. Lawton (W.W.)	50	—	50
	H. Brayshaw (W.W.)	49	1	50

BRIGHTON STOCK TEST REPORT FOR JANUARY.

HEAVY BREEDS SECTION.

Competitor. No. of Pullets.	Breed.	Total Score.
R. Mummery (9)	W.W.	123
High Halden (1)	W.W.	83
W. F. Morris (12)	W.W.	110
Countess Buxton (5)	W.W.	85
Mrs. Crooks (4)	W.W.	79
W. Crabtree (10)	W.W.	111
Brighton (8)	W.W.	100
Craig Gallon (8)	R.I.R.	97
Col. Mcleod (9)	R.I.R.	120
Mrs. Russell (6)	R.I.R.	104
R. Saunders (7)	R.I.R.	98
S. Simmins (10)	R.I.R.	99
Capt. Woodford (14)	R.I.R.	129
Capt. Tomlinson (9)	R.I.R.	108
Miss Clark (10)	R.I.R.	98

LIGHT BREEDS SECTION.

Competitor.	No. of Pullets.	Breed.	Total Score.
Bradbury	(14)	W.L.	134
"B"	(15)	W.L.	136
E. Coles	(10)	W.L.	146
Chisbury Farm	(17)	W.L.	136
E. Street-Porter	(18)	W.L.	147
B. Glendenning	(17)	W.L.	134
Mrs. H. Kent	(18)	W.L.	138
Sweet Escott	(19)	W.L.	150
David Brown	(18)	W.L.	151
Amsden Bros.	(17)	W.L.	146
D. Gunston	(16)	W.L.	142
Miss Maddison	(18)	W.L.	148
Miss Ransford	(14)	W.L.	143
Court Farm	(17)	W.L.	144
"W."	(13)	W.L.	129
Brown's P.F.	(9)	Anconas	114
Mrs. A. Stuart	(10)	B.L.	100

JOHN H. DOWDEN.

Heathfield.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Bunt, John, Louren, Delabole, near Cornwall.
Wallis, W. J., "Sandgate," Branksome Avenue, Stanford-le-Hope, Essex.
Clemenson, R., Acton Park, Acton, near Wrexham.
Roberts, F. H., Oaktree Cottage, Barnston, Birkenhead.
Tatton, H., Grafton House, Tockwith, York.
Russell, S. B., Hill Barn Farm, Snowshill, Broadway, Worcs
Parker, Keith, Nametz, Brundall, Norfolk.
Sanderson, J., Queen Mary's Farm, Slaithwaite Road, Meltham, near Huddersfield, Yorks
Pym, Mrs. Guy, Whinnie Knowe, Nairn, N.B.
Copland, Mr., Redbank, Thingwall, Cheshire.
Upson, E., Biddens Farm, The Haven, Billingshurst, Sussex.
Leest, F. W., "Inglenook," Hockley, Essex.
Hadaway, P. L., "Bruges House," Overland Lane, Ash, Canterbury.
Walker, Frank, 45, The Square, Fairfield, Droylesden, Manchester.
Pilkington, G. W., Fox Stones Poultry Farm, Ripponden, via Halifax.
Paterson, John, Beechgrove, Udny, Aberdeen.
Lawrey, Richard, Varfell, Longrock, Cornwall.
Lee, Edward H., The Mount, Dinas Powis, Cardiff.
Brown, Miss M. F., Prospect House, Holmbrook, Cumberland.
Tippet, R. H., Protea Lodge, Mill Road, Myland, Colchester.
McGregor, Miss D., Redmyre, Invergowrie, Dundee.
Bennie, John, Nappy Faulds Farm, By Falkirk, Stirlingshire.
Turner, Mrs. G., Inglewood, Hungerford, Berks.
Brook, P. T. S., Romden, Chartham Hatch, Canterbury.
Davidson, Mrs. M. A., 41, Thornhill Gardens, West Hartlepool.
Cross, H. G. E., Dartmeet, Princetown, Devon.
Tyldesley, Jess, Aigburth P.F., Walney Island, Barrow-in-Furness.
Wright, Capt. Gervaise, Morton Manor, Rolleston R.S.O., Notts.
Chapman, Mrs. A. M., Malthouse Lane, Kenilworth.
Wilson, C. Gray, Auchinloch, Banknock, By Bonnybridge, Scotland.
Gregg, Miss B. M., Orchard Poultry Farm, Little Chart, Kent.
Kell, F. C., Nettleton Lodge Farm, Caistor, Lincolnshire.
Sidlow, Thomas, 100, Settle Street, Gt. Lever, Bolton.
Cunnington, J. T., Church Farm, Pentney, King's Lynn.
Johnson, Miss M., Meadow End, Cradley, near Malvern.
Peat, R. E., 26, Sandown Road, Brighton, Sussex.
McFerran, Mrs. J., Ballyobican House, Ballywalter, Co. Down.
Armitage, John, Headlands, Ossett, Yorks.
Jones, C. J., Guion House, Gt. Bookham, Surrey.
Birds, Geo., 7, Newton Street, Barnes Green, Blackley, Manchester.
Chantrey, E. L., Hawkes Hill, Rudgwick, Sussex.

OUR FRONT COVER.

The "ideal" is something at which we aim, but never succeed in attaining. Perhaps it is better we should not, for the real interest in life lies in striving.

If Mrs. Harry Kent has not attained the ideal conditions for poultry-farming, the illustration of the corner of a Large Laying House on our front cover will at least make many of our readers wish that they were lucky enough to be carrying on their work in such an environment.

Mrs. Kent is a breeder of Light Sussex, Black and White Leghorns and Aylesbury Ducks, and she has achieved considerable success in the Show pen with all these breeds. Her aim with Black Leghorns is to produce birds which will conform to the Standard of the British Black Leghorn Club, and thus save this variety from the extremes which beset the Utility and Exhibition breeder. That is a great ambition, and we can only wish there were more who would do the like.

With Whites, Mrs. Kent has been very successful in exhibiting and has a few of the Fancy type still, but is now turning her attention to the Utility side entirely, and is expecting great things by the Introduction of American blood through several sons of a 273-egg hen.

These have left their mark in improved type and vigour in the resulting cockerels. These in two pens have been mated to hens with winter records of from 42 to 54.

Light Sussex have been selected for type and colour, consistent with good egg production, and Mrs. Kent has a good selection of the most useful breed.

POST-MORTEMS—Continued.

E. L. C., W.W. Pullet. This was an acute case of gout, the liver and chest membranes and the investments of the heart being thickly covered by the characteristic deposit. It was the constriction of the heart's action that actually killed her. Please see the article on this subject in "Eggs" of the 27th Feb.

F. J. H. This was a case of pleurisy. Not infectious.

J. R. B., Ringwood. The White Wyandotte pullet had inflammation of the heart coverings, which caused death. This case originated in gout, and the chest and liver membranes were loaded with urates of sodium; looking as if dusted with flour. Do me the favour of reading my article on the subject in "Eggs" of February 27th. Yours was a typical case.

H. D. G. The infectious form of pneumonia known as pneumomycosis, and showing tubercles in the lungs resembling liver, of various sizes.

J. B. B. This pullet had inflammation of the kidneys, and the ovarium had become purple. One wonders if spices have been used, as they have this effect when given in excess.

Z. Z. They were both pneumonia cases.

H. LEENEY.

CORRESPONDENCE—Continued.

50,000 HEN FARMS.

To the Editor of "Eggs."

Dear Sir,—Please allow me to correct the questionable misunderstanding of Mr. Jacomb.

I thought it quite unnecessary to elaborate on the two conflicting (?) statements he so very courteously refers to, but when one is out to score points to make his own case good, he can always find them.

There was never yet an article written on any subject but which was bristling with points open to criticism if the "point scorer" will look closely enough for them. There are the two passages :—

(1) "It is obvious that most large commercial flocks are overcrowded. The tendency on all large ranches is in this direction."

This is quite true. I was speaking mainly of this country, although the same practise is carried on to almost the same extent in England.

There is seldom housing accommodation adequate to the numbers of layers kept. Most of the ranchers here pack them to the extent of less than two square feet per bird.

In my humble opinion they are overcrowded.

(2) "I may say in passing that I have never seen a 10,000 poultry farm with 10,000 layers."

Quite right again. Although the ranches are overcrowded they have not the quantity of stock they claim to have.

I believe it was quite apparent to all that I was discussing the self-advertised 10,000 or 5,000 ranch as the case may be.

I believe, Sir, that I wrote to you some time ago, using the literature of a large chicken rancher here. He had printed on the letter-head "10,000 layers kept on this ranch," or to this effect.

I had occasion to cull his flock. He had less than 6,000, and so it is all along the line.

I repeat, then, that I have never yet seen the 10,000 poultry farm with 10,000 layers. Has Mr. Jacomb?

It is a well-known fact that one can write of a number of birds from the owner's estimations. I don't wish to cast any reflections as to the veracity of poultry-keepers as a body; they are on a par with the fisherman, and the 5 lb. trout which he never caught but hopes to some time. Their aim is 10,000; they never get it; they haven't the accommodation if they did, but they hope to some day, and in the meantime they speak of their 10,000 chicken ranch.

Another point I must mention. In one part of the article I state that "the eggs were placed on the egg trays at an angle of 45 'per cent.'" The mistake was entirely mine, due to a fit of aberration. Here was an excellent chance for some point scorer to claim that one so dense as to do a stunt like this is not to be considered on any matter whatever.

Yours faithfully,

FRED FIELDING.

LEG WEAKNESS.

To the Editor of "Eggs."

Dear Sir,—Looking through a few of last year's "Eggs" I came across your Editorial re Leg Weakness, which was very prevalent in the early months.

You again mention it this week, you infer that overcrowding and the dry air under the hovers affects chicks that way.

Last year I had very little trouble with leg weakness, and this year only one case in about 400 chicks.

I have three different types of hovers, and they have been in use for three seasons. The best is the "Pioneer." With this hover I have found that it will rear healthier chicks than the other types I have; also the chicks do not mass together, but seem to be quite comfortable, even with a low temperature.

I put 80 chicks under one of these hovers early in January, and since the first week the door of the house has never been closed in the day-time—no leg weakness or brooder pneumonia.

Last year I lost a good many chicks through chill, and I came to the conclusion that the hovers were partly the cause.

With the "Pyramid" type of hover I find the chicks are always susceptible to chill and pneumonia. I suppose that every practical chicken-rearer will admit that the strongest chicks are produced under the lowest temperature they are comfortable with, and I consider the temperature under the latter named hovers is not healthy for them. This type of hover serves well for the first week, or for about 50 chicks.

If one enters a house where a "Pyramid" type of hover is working to a "Pioneer," the atmosphere in the former case will strike one as tropical, and the latter quite fresh. The atmospheric type of burner—as it seems to me—extracts from the air what the chick badly needs.

My first hatch, December 29th, I put under a hover with an atmospheric burner, and I had to spend days getting them out on the ground, yet the climatic conditions were better than for some of the following hatches.

Maybe some are very successful with this type of hover, though I've always found the chicks sweat a lot and consequently weakened thereby.

You, Sir, have always advised getting the chicks on to Mother Earth. Without a doubt the chicks that can be persuaded out in their early days do not get this leg weakness. I like to get mine out whatever the weather about the first week, even if one or two succumb. I find it pays.

Your formula, as recommended, is used, with the addition of skim milk, once daily only, as chicks consume a lot of mash for their size, and when fed dry are apt to drink a larger quantity of milk than I think is good for them. I might add that the dry mash hoppers are placed outside the house if at all possible—a shelter can easily be put up—and consequently the chicks spend most of their time on Mother Earth.

Yours faithfully,
"BAYHAM."

With regard to our correspondent's remarks we are not able to agree with him entirely. We find, on going through a large amount of correspondence, that the results under the various types of hovers are much the same, and we cannot find that the chicks are less inclined to sweat under one type than another—that is, judging by our own experience and the correspondence which we have waded through, and of which we have kept a note.—(Editor.)

FOURTH INDIAN LAYING TEST.

Our three months' winter laying test has just been completed, and we in India are congratulating ourselves and the sporting English breeders who have supported us on having established a record for winter laying. We shall be interested to hear whether at any other winter test in the world a pullet has laid more than 84 eggs during the three months, November, December and January. This record has been accomplished by Mr. F. R. Welch's Light Sussex pullet after a journey of some 10,000 miles across the world. It is some "triumph" indeed, and we heartily congratulate Mr. Welch on winning the Governor's Cup with this bird. Her record was November, 25; December, 30; January, 29 eggs. Mr. Welch's pullet, however, just failed to get up to the 2oz. egg, and therefore lost the Oversea's Cup to Mr. Leslie William's White Wyandotte pullet. This little hen is a gem, and combines beauty and utility to perfection. She laid steadily 2¼oz. eggs to the number of 69.8 first-grade eggs from the opening of the test. A full record of the special prizes is appended, and score cards fully filled up have been sent monthly to the competitors. We regret our 25 Australian entries failed to catch a steamer in time for the test, but they are all coming up next year, and we invite breeders from all part of the poultry world to come and try their luck next year and cap this record if they can. All birds kept good health during the test, and there are no casualties to report. Birds are being sold on completion of the test to the highest bidders.

Mrs. A. K. FAWKES, Secretary.
United Provinces Poultry Association, Lucknow.

LIST OF SPECIAL PRIZE-WINNERS.

1. The Governor's Cup, presented by His Excellency the Governor U.P., won by a Light Sussex pullet with a score of 84 eggs in 92 days, owned by Mr. F. R. Welch, England.
2. The best layer from overseas, presented by the Stewards of Lucknow Races, won by a White Wyandotte pullet, with a score of 69 4/5 eggs, all over standard weight, owned by Mr. Leslie Williams.
3. Best layer from India, presented by the Stewards of Lucknow Races, won by a Black Australorp pullet with 66 3/5 eggs, all standard weight, belonging to Mrs. Grain, Ranikhet, India.
4. Best team of birds, won by four Australorp pullets, presented by the Right Hon. Lord Dewar, won by Mrs. Grain, Ranikhet, India.
5. Cup for the best layer, bred or purchased from the U.P. Poultry Association, won by a Rhode Island Red pullet, with 64 4/5 standard weight eggs, owned by Capt. D. G. Ansell, Kalow Poultry Farm, Burmah.
6. Cup for the best layer, heavy breed, presented by the Raja of Mursam, won by the same as No. 2.
7. Best layer, light breed, presented by Messrs. Perry and Co., Lucknow, won by Mr. Bradbury, England, with a White Leghorn pullet.
8. Best layer owned by an Indian Resident of United Provinces, presented by the U.P. Poultry Association, won by the Raja of Mursan's Rose-Combed Minorca pullet.
9. Best consecutive layer, presented by the U.P. Poultry Association, won by No. 1, laying 26 eggs consecutively.
10. Best layer belonging to a member of the Indian Poultry Club, presented by the Indian Poultry Club, won by Mrs. Grain, Ranikhet.
11. Best layer Australorp breed presented by the Austral Orpington Club, England, owned by a Club member, won by Mrs. Grain, Ranikhet.

Scientific Poultry Breeders' Association.

GLOUCESTER BRANCH.

I hear from Mr. Greenway, the energetic Secretary of the above branch, that a very successful meeting was held on February 20th at Promenade House, Cheltenham. Members turned up in good numbers to hear a very interesting and educative paper by Major Shewell on "The Selection of Breeding Stock." The lecturer pointed out that he was more inclined to favour Pedigree Breeding in a small way on scientific lines rather than a large commercial egg farm. He called attention to Oscar Smart's book on "The Inheritance of Fecundity in Fowls," and also quoted many articles recently published in "Eggs" on the subject, especially the most recent on the "L2 Factor," by Capt. Heseltine.

Unfortunately the lecturer had to leave early and was not able to stay to answer questions, but he will have an opportunity of doing so on March 5th, when the next meeting is to be held at 7.30 p.m. in the same place, and the subject will then again be brought up for discussion.

On Monday, March 3rd, by kind permission of Mr. Stevens, members of the branch paid a visit to the Glevum Incubator Works, and spent a most educative and enjoyable time.

UTILITY DUCK CLUB NOTES.

I hope that at the same time as these notes are published a report of the last Council Meeting will appear. In it may be noted that in the past four months the membership has been more than doubled. A very pleasing feature of many of the recent additions which have been made to the register is that they are evidently the result of the individual efforts of old members. That is what the Council wishes to see. While thanking these members for what they have already done, may I urge them to still further effort, and at the same time add the hope that those who have not yet succeeded in securing a recruit to the U.D.C. will not cease to make the attempt.

As has been stated in the report mentioned above, the U.D.C. is doing something at the "Ideal Home Exhibition" at Olympia during the next three weeks, and it is hoped that many members will be able to see the exhibit of ducks which will be shown there.

But it is time to say something of a seasonable nature. In my last notes I said a few words about the laying type. The appalling weather we have suffered from lately will have put this to a very severe test. It is an absolute marvel how any birds can continue turning out an egg a day without stopping, under present conditions, hail, snow, frost, rain, biting north-easterly winds, in fact every horrible thing you can imagine, and yet every morning the trap-nests yield a regular harvest, and one hears news from the various laying tests of a very satisfactory increase in the output of eggs.

Remember, however, that this is only obtained by good feeding and good management. The birds have to be provided with the fuel to keep up their bodily heat, and the surplus food out of which to make the eggs. The plain conclusion is, do not stint your feeding in such weather as this. It is useless to weigh out a fixed ration, and say that is what the duck eat last week, and, of course, that is all they will need now. It is better to find a little left in the troughs than to find them picked absolutely clean, and if they are of metal, almost polished with the birds' efforts to secure the last trace of nourishment. If the troughs are absolutely clean it is certain that you are underfeeding. This is not worth while.

I have several letters before me about the difficulty members are having over fertility. As I have by no means escaped the trouble myself, except in the case of Runners, where fertility has been excellent, I cannot pretend to omniscience on the subject, but there are certain precautions which can be taken.

First of all, in the case of the heavier breeds, do not overmate your drakes. Three to five ducks should be enough whilst this kind of weather lasts.

Secondly, if you are mating several pens, put all the drakes in on the same day, and, if possible, arrange things so that they cannot see one another. Nothing is so annoying, and, incidentally, so detrimental to fertility as to see two drakes perpetually running up and down on either side of the dividing wire, and calling one another nasty names, if nothing worse. In addition, any barriers you erect will help to act as shelter from the bitter winds. Their dislike of wind was clearly demonstrated to-night, for on going round of the breeding pens, I found considerably over 50 per cent. of the birds were safely inside the traps. In several pens every bird was comfortably asleep, whereas, usually in normal weather they like to stay out to the last possible moment.

Feeding green-stuff I have already mentioned many times, but whenever possible, it should not be neglected, though the ducks are sometimes most exasperating, for they will refuse to eat what has been obtained with no little difficulty. Finally, as soon as broody hens become obtainable, I would suggest that members should study the latest leaflet on "Natural Incubation and Rearing," which will, I hope, be in their hands by that time.

Messrs. White, Tomkins and Courage are prepared to offer 1s. in the £ discount off their usual prices to members of the U.D.C.

HUGH B. CARRINGTON, Hon. Sec.
Blacklands, Crowhurst, Sussex.

REPORT OF THE UTILITY DUCK CLUB COUNCIL MEETING.

A well-attended Council Meeting of the Utility Duck Club was held at the office of the National Utility Poultry Society on February 13th. Owing to the meeting having unavoidably been postponed, the President, Mr. Stanley Street-Porter, was unable to attend. In his absence the chair was taken by Mr. Oscar Brown.

After the usual formalities, the Hon. Sec., Mr. H. B. Carrington in his report stated "That the Utility Duck Club Stand at the International Poultry Show had been entirely successful from a financial point of view, and he believed from a propaganda point of view also, great interest having been shown in the exhibits, while the whole of the duck eggs, which members had so kindly given, had been disposed of without the least difficulty, and could have been sold over and over again, a distinctly encouraging fact in view of the prejudice which still exists in some quarters against the Duck Egg. Nearly 50 new members joined during the show. Arrangements were made to secure the same stand space for the 1924 show. He was pleased to report that since the Annual General Meeting, held at the 1923 Dairy Show, the membership had more than doubled, and there was strong evidence, through the big correspondence with which he had to deal that the interest in Duck Keeping was very largely on the increase. The 1924 Year Book had recently been issued, and appeared to be much appreciated by members.

The remainder of the time was occupied in discussing what steps should be taken to ensure proper representation of the Club at the Ideal Home Exhibition, the Barcelona Conference, and the British Empire Exhibition. At the first and the last of these the National Utility Poultry Society offered their assistance, which was cordially accepted, with the result that at the "Ideal Home Exhibition" will be shown representative specimens of various breeds of the Utility Duck, whilst the Club Literature will be on sale at the N.U.P.S.'s Stand.

For Barcelona it is intended that special literature shall be prepared, particulars of which will be available to members at a later date. It is also hoped to send some interesting exhibits. At Wembley U.D.C. exhibits will also be shown on the N.U.P.S. Stand, and the Council particularly wish to draw members' attention to the fact that pens for the exhibition of stock may be secured. It is hoped that throughout the exhibition ducks may be well represented. Particulars may be obtained from the Hon. Secretary.

This concluded the business.

ROYAL SUPPORT FOR THE WORLD'S POULTRY CONGRESS IN BARCELONA.

MAY 10-16, 1924.

This gathering of delegates from all the leading countries of the world, engaged scientifically and practically in poultry culture, promises to be even more interesting and successful than that held at The Hague in the autumn of 1921. H.M. the King of Spain and his Government, as well as the Municipality of Barcelona, are giving an official welcome to the Congress, which is being held at their especial invitation in Spain.

The exhibition of trios of various breeds of poultry from the different countries represented is already assured of a record entry, and will furnish an unrivalled display of the many and varied races of fowls now bred.

H.M. the Queen of Spain is sending a number of pens of poultry from her yards to be exhibited in a special Royal Section of the show, and suggested to the Congress Executive that H.R.H. the Prince of Wales might be approached to forward two or three pens for inclusion therein also. To an invitation embodying Her Majesty's request the Prince has cordially agreed, and it is hoped also to include some pens from H.M. the Queen of the Belgians.

British exhibitors have come forward well, and it is hoped to fill eighty pens with representative breeds of poultry, ducks and turkeys. The birds will travel by train in specially built crates in charge of the well-known poultry expert, Mr. Clem Watson, and their exhibition should do much to stimulate the British export trade of pedigree poultry. At The Hague it was generally admitted that the British Livestock Exhibit stood out from those of all other countries, and no efforts will be spared to ensure a like result at Barcelona.

The Official Handbook on British Poultry and Poultry Keeping, which is being prepared by Mr. S. H. Lewer, President of the British Congress Committee, is in active preparation, and will be beautifully illustrated with coloured as well as black-and-white illustrations.

T. R. ROBINSON, Hon. Secretary.
3, Vincent Square, S.W.1.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 29th FEBRUARY, 1924.

GRAIN AND FEEDING STUFFS.—The demand for home-grown wheat shows some falling off, and, after a steady rise of many weeks' duration, a weaker tendency is now discernible in quotations. Barley remains scarce, and both malting and feeding grades are very firm, while oats, although meeting only a quiet trade, are dearer at both Bristol and Liverpool.

Trade for imported grain has been practically at a standstill during the greater part of the week, owing to the difficulty of obtaining supplies from the docks.

Milling offals are in good request and fully maintain their recent advance; coarse middlings now average £9 5s. per ton, compared with £8 10s. at the beginning of the year, and £7 10s. at this time last year.

MILLERS' OFFALS.—Bran (British): Hull, £7 17s.; Liverpool, £8 10s.; London, £8. Broad Bran: Bristol, £9 15s.; Hull, £9 7s. London, £8 15s. Fine Middlings (Imported): London, £10 2s. Coarse Middlings (British): Bristol, £9 15s.; Hull, £9 5s.; Liverpool, £9; London, £9 2s. Pollards (Imported): Bristol, £8 10s.; Hull, £7 10s.; Liverpool, £7 7s. Rice Bran: Bristol, £8 2s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £11 7s.; Hull, £11; London, £11 12s. Maize Meal: Bristol, £12; Hull, £11 11s.; Liverpool, £11 10s.; London, £12. Maize Germ Meal: Bristol, £11 5s.; Hull, £11; London, £10 5s. Maize Gluten Feed: Bristol, £11; London, £9 10s.

EGGS AND DEAD POULTRY.

Eggs meet a steady enquiry; British are in good supply, and the average price, 21s. per 120, is 1s. 9d. lower than last week. Irish are also cheaper, while imported, which are offered in smaller quantities than usual, are easier in most instances. Chickens are scare and dearer at all markets, 1st quality averaging 1s. 7d. per lb. as compared with 1s. 6d. last week.

Week-end prices—Eggs (per 120): British, 22s., 21s.; Irish, 21s., 20s.; Danish, 23s., 21s.; Dutch, 22s., 20s.; Styrian, 19s., 17s. 6d.; Egyptian, 13s., 11s. 6d.; Belgian, 21s., 18s. 6d; Chinese, 17s., 14s.

Dead Poultry (per lb.): Fowls—Surrey, 1s. 11d., 1s. 8d.; Irish, 1s. 7d., 1s. 4d.; Others, 1s. 9d., 1s. 5d. Ducks, 1s. 8d., 1s. 4d. Geese, 1s. 2d., 11d. Turkeys, 1s. 9d., 1s. 5d.

EGGS.

Per Doz.—Ashford: First, 2s. 2½d.; Second, 1s. 11d. Birmingham: First, 2s. 3½d.; Second, 2s. 0d. Carlisle: First, 2s. 2d. Chelmsford: First, 2s. 0½d.; Second, 1s. 10¾d. Denbigh: First, 1s. 8d.; Second, 1s. 6d. Derby: First, 2s. 2d. Dorchester: First, 1s. 6½d. Exeter: First, 2s. 1d. Guildford: First, 2s. 4d.; Second, 1s. 11d. Hereford: First, 1s. 9d. Hull: First, 1s. 11d. Ipswich: First, 2s. 3d.; Second, 2s. 0d. King's Lynn: First, 2s. 3d.; Second, 2s. 1d. Lincoln: First, 2s. 3d. Llandilo: First, 1s. 9d.; Second, 1s. 6d. Montgomery: First, 1s. 9d. Newport (Mon.): First, 1s. 10d. Norwich: First, 2s. 0d. Oswestry: First, 1s. 10d.; Second, 1s. 9d. Penzance: First, 1s. 7d.; Second, 1s. 6d. Salisbury: First, 2s. 0d.; Second, 1s. 10½d. Shrewsbury: First, 2s. 0d.; Second, 1s. 10d. Skipton: First, 2s. 3d. Truro: First, 1s. 6d. York: First, 2s. 3d.; Second, 2s.

FOWLS.

Per lb.—Birmingham: First, 1s. 4d.; Second, 10d. Derby: First, *5s. 3d.; Second, *3s. 0d. Exeter: First, 1s. 7d. Hereford: First, 1s. 5d.; Second, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Lincoln: First, *5s. 0d.; Second, *3s. 9d. Llandilo: First, 1s. 7d.; Second, 1s. 3d. Newport (Mon.): First, 1s. 5d.; Second, 1s. 2d. Truro: First, 1s. 3d. York: First, *5s. 3d.; Second, *4s. 0d.

DUCKS.

Per lb.—Birmingham: First, 1s. 0d.; Second, 8d. Exeter: First, 1s. 6d. Hereford: First, 1s. 4d. Llandilo: First, 1s. 7d.; Second, 1s. 4d.

* Per Head.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, March 12th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

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Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

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NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

CHICK MORTALITY.

The excuse for this article is the hope that it will lead to a healthy debate, and so throw new light on a subject which, although it has been ventilated times without number, will always repay further discussion, until such time shall come; (and we must hope that it will) when further discussion will be unnecessary.

There are some unfortunate individuals who believe that a high chick mortality is inevitable, they accept it as one of the necessary evils of poultry-farming. If that attitude was adopted by all, then, indeed, our position would be hopeless. There are others who look for a solution in the laboratory, who pin their faith on those engaged in research work, and still others who turn their thoughts to serums, vaccines and drugs. In our opinion this is the weak spot in our fight with disease, because it is not dealing with fundamental causes; it is not the real battle-ground; it is but skirmishing. Whatever is discovered in the laboratory; whatever we may hope from serums and the like, these can be but palliatives, and the real solution lies in the careful selection of our breeders, in a better understanding of nutrition, and a more complete realisation of the fact that disease lurks in the brooder, whether it be anthracite stove, oil hover, or the old type box brooder.

We have repeated here, in order to reply to Mr. McLaren's letter, which appeared in last week's issue of "Eggs," the remarks in reference to vaccines, serums and drugs, to which he takes exception. We accept full responsibility for what is written, and note Mr. McLaren's reference as to these remarks tending naturally to discourage from using this journal as an advertising medium, those firms which offer these remedies. We must point out to Mr. McLaren that under no circumstances can we permit ourselves to be influenced as to what shall be published in the literary columns of this paper, by those who use it for advertising purposes. Their interests are protected, as far as possible, by refusing to permit them to be subjected to unfair competition by dishonest advertisers, who by specious advertisements secure the business which should go to the honest ones. No poultry paper in the country has done so much to protect its advertisers and readers as "Eggs." It would be manifestly unfair to our readers if we allowed ourselves to be influenced by them, as to what should, or should not, appear in these columns. There was no suggestion on our part that they have not a conscientious belief in the remedies they offer, but we were writing of preventive and not remedial measures.

If Mr. McLaren will pardon our saying so, he is dealing with effects while we were considering causes. Perhaps, if he considers what precedes this, and what follows, he will understand what is meant.

Statistics can be made to prove anything, and the proprietors of any patent medicine can produce testimonials which will show that their remedies will cure anything from rheumatism to appendicitis.

We certainly have no conclusive evidence that any remedy or preventive has yet been discovered for B.W.D., and before we accepted any testimonial as to a cure or preventive of this scourge, should require actual proof of the existence of the disease, and the testimony of a qualified bacteriologist, as it has been mistaken for something else in hundreds of cases. Both this disease and Coccidiosis are outside the purview of this paper. Although the losses from them are undoubtedly very heavy, it is doubtful if they are accountable for more than 15 to 20 per cent. of the total chick mortality. We cannot say so far that they are controllable diseases. There is need for further research work in connection with them. The mortality with which we are dealing is, to a very great extent, within the control of the poultry-keeper. At all events, it is perfectly certain that the remedy is not to be found in the laboratory.

It is unnecessary to dwell on the fact, that it is to a great extent a breeder's problem—that must be supremely obvious. Constitutional vigour is fundamentally a matter of inheritance. There is no need to say more. The nutritional side does not largely affect the question; it may influence it, of course, but such evidence as we have been able to collect from some hundreds of post-mortem reports indicates that the mortality from mal-nutrition is not very high, and the whole point here appears to be, the study of nutrition with a view to building up a greater power of resistance to disease.

One, of course, recognises that there may be, and often are, deficiency diseases, and that breeding stock fed on rations which are deficient in certain necessary constituents will produce chicks which are lacking in constitutional vigour. But we maintain that it is not on this side that we must look for the excessive chick mortality. All the evidence we have been able to collect during the past six years indicates that it is, in the main, a brooder problem, and we venture to advise our readers to concentrate on this side of the question. It is a problem largely of ventilation, consistent with the maintenance of a proper temperature.

By whatever methods chicks are brooded, there is always an excess of carbon-dioxide, and the corresponding deficiency of oxygen. In some brooders this is due to the lamp exhausting the oxygen; in others to insufficient ventilation, and in the majority to the massing of the chicks. It must be obvious that when two or three hundred chicks are massed together that the exhalation of carbon dioxide from their bodies must mean that they are sleeping in an unhealthy atmosphere, and if the percentage of carbon dioxide could be measured it would be found to be greatly in excess of what is normal.

There is also the question of humidity which would appear to have a most important bearing on losses from Leg-Weakness, vide Dr. Clayton's letter. The percentage humidity under an anthracite stove was registered for us some years ago by Col. Napier, and found to be only 35 per cent. as compared with 82 in the normal atmosphere.

One of the most striking features of the high mortality of chicks reared under these conditions is that they often exhibit symptoms of B.W.D., and there is now sound reason to believe that the bowel trouble is due solely to their debilitated condition.

In examining a large number of post-mortem reports, we have been struck with the very high percentage of losses, attributed to "brooder pneumonia," to "pneumonia" and kindred diseases, and we maintain that in the majority of cases these can be traced to the unhealthy atmosphere under the brooder. In some cases it is due to exposure, and in others to floor draughts. Let us take a sample case The writer says: "We have had very serious losses in a batch of 130 'Dotte chicks hatched on the seventh. They were a splendid lot when we put them in the brooder, and all went well for the first week. We feed wet mash, biscuit meal scalded with skim milk, dried off with ground oats twice daily, equal parts middlings, and oatmeal mixed with skim milk once, and Spratt's dry chick feed three times daily in the litter. They appeared a lively lot until the ninth day, and we were very pleased. Then one of them began to wobble, and went down as if it had a fit. Next day two or three more were like it, and several began to droop their wings and look sick. We sent two for post-mortem to ———, and he says: 'Infectious pneumonia.' The chicks seemed to gasp for breath. We started at a temperature of 85, and dropped 80 after the first week, and they seemed perfectly comfortable. The only thing we noticed was that the litter was a little moist in the morning, but we changed it every day."

That is typical of a large number of letters which come to hand. Capt. Leeney would, of course, speak more authoritatively on this matter. We can only say that this "wobbling" or "grogginess," as others describe it, or, in other cases, "leg-weakness," appears to be the most common symptom, and suggest that the real cause is improper ventilation, and that the best preventive is to get the chicks off the floor. When chicks "sweat" it is not so often a case of too high a temperature (although admittedly that is a contributory cause), but the real reason is foetid atmosphere caused by improper ventilation. This could be overcome to a great extent if the suggestions which we originally made as to anthracite stoves were followed out, or if the ideas of Mr. Leschallas and Mr. Somerville were adopted.

Apart from the immediate mortality it must be obvious that chicks reared in such an atmosphere must be more liable to diseases of the respiratory organs than those reared under hens, or in comparatively small numbers, and is it not reasonable to suggest that it is under such conditions as these that the seeds of roup and kindred diseases are sown.

To one other point it is necessary to draw attention. We are referring to the damp and filthy litter which is often to be found in brooders and hovers, where there is improper ventilation, and, again, to the urgent need of clean, dry litter for breeding stock. One serious loss from pneumonia due to infection with spores of a fungus was directly traced to purchased eggs. Not only did the chicks hatched from these eggs perish, but also the majority of the next brood from the home stock, the eggs being infected in the incubator.

Of pneumonia, due to chill or exposure, one need say very little, but beginners may be advised that, although chicks may be exposed to a fairly low temperature for a short time without serious injury it is a very different matter to exposing them to biting winds, such as we have experienced during the last few weeks. Great care should be taken not to allow the chicks to remain too long in the nursery drawer of the hot-air incubators. As so often stated in these columns, there is a difference of 20 degrees between the temperature of the egg tray and the nursery drawer, and the plunge from a 105 to 85 degrees for a newly-hatched chick, especially when not quite dry may easily be fatal.

Floor draughts are another agent in the high mortality from pneumonia, and, in addition, often cause crowding. Later when the chicks can do without heat there are often severe losses from their huddling in heaps in the corner of a colony house, and here again, with 40 or 50 chicks huddled on the floor the atmosphere is heavily charged with carbon-dioxide. They should be induced to perch as early as possible, but as has been stated, the highest mortality is due to the lack of ventilation in the brooder, or under the hover, and the best way to overcome this is to make a false bottom of perforated zinc of small mesh wire on a frame, and to cover this with hay. This will prevent sweating, and ensure a sufficient supply of oxygen, and it may do much to reduce the loss from leg-weakness with the early broods.

Now, perhaps Mr. McLaren will understand what we mean when we say that we have no faith in Vaccines, Serums, and Drugs, as a means of fighting disease. While the fundamental causes remain, they can be but palliatives.

While we are very far from assuming that we have found a solution to the problem of heavy chick mortality, we are convinced that we are getting on the real track, and once again "Eggs" and the S.P.B.A. have taken the lead. Is it surprising that our circulation and our membership show such rapid and continuous increase?

Since writing the above Capt. Leeney has stated that in post-mortems on 1,500 chicks he has found that over 60 per cent. of the mortality is from pneumonia, and Dr. Hammond has the same experience.

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

"THE POULTRY-KEEPER'S TEXT BOOK."

The author of the above, Mr. E. T. Brown, is well-known in the Poultry world, having been lecturer to many Agricultural Colleges and County Councils, and Instructor at the College Poultry Farm at Theale. Certainly his book is very comprehensive; and, if I may say so, this rather detracts from its value, as certain subjects might well have been dealt with more comprehensively. This may savour of contradiction, but my readers will understand what I mean.

The opening chapter deals with the "Origin of Breeds," and the second with their classification; then follows a very interesting one on "Breeding," which covers Mendel's Law, Pearl's Theory, Goodale's Rhode Island Red Results, and Hurst's experiments. These are lucidly explained. Next, "Incubation, Artificial and Natural," are dealt with, and "Rearing," "Feeding," both dry and wet mash systems, but I must confess that one of Mr. Brown's mashes rather staggers me, consisting as it does of eight parts bran, one maize meal, one wheat middlings, and two of fish or meat meal. The parts are by weight, and although I am a believer in bran, the proportion is altogether excessive, and we can only conclude it is a printer's error. Again in the breeder's mash, there is a woeful deficiency of lime salts, and although this might be remedied to some extent if the birds had free range over pasture, it is too important a constituent in the mash not to be provided for, if healthy vigorous chicks are to be expected. There are chapters on "Fattening," "Marketing of Ducks," of table poultry, including ducks, turkeys and geese; on "Disease, Its Prevention and Treatment," on "Housing and Soils," the "Care of Runs," "Draining and Measuring Land," Table of Weights and Measures, and a Glossary of Terms. The illustrations are numerous and excellent, nearly every breed and variety of fowl being depicted, as well as houses and appliances.

"SELECTING THE LAYERS."

Mr. Powell-Owen needs no introduction; as an exponent of the "Handling System," and a Utility judge, he is known throughout the length and breadth of the land. You are aware that there are many points in regard to the system on which he and I do not agree. In my opinion he claims too much for it, and in his (I am assuming this) he thinks I do not see all its possibilities. Well, we may argue to Doomsday, and not convince each other, but it has not made the task of reviewing his book the more easy.

He deals with the whole subject of "Selecting the Layers" very thoroughly, and his arguments are supported by some very excellent illustrations, which in themselves have a real educational value. I cannot speak too highly of them. The opening chapters deal with "The Hen From Within," and Mr. Owen treats his subject very exhaustively, describing the Laying Organs, Ovarian Disorders, When Egg Making is Checked, Digestive Disorders, Cock Hens, and Hens That Never Lay. Then we come to the "Powell-Owen Score Card," and "What Capacity really is" and "What Capability Means," "The Egg to Incubate," "Care of the Breeders," and "The Chick to Rear." A very useful chapter is devoted to "Grading for Laying Tests and Trap-Nesting," and another to "Grading Out Deformities." Then we come to "Selecting the Male Birds," and I particularly note the advice: "Do not listen to the critics, who tell you that capacity is nothing in the male bird." I am one of the critics, and nothing has yet occurred to make me change my mind on this point; when I do, I will not fail to let you know. However, there is some very sound advice in this chapter in which I heartily concur. Then follows "Size of Egg and Influences Thereon." Here I am in a difficulty, for we approach the subject from two totally different standpoints. Mr. Owen from the point of view of texture and conformation of the bird, while I look at it from the view of heredity; or, to be more correct, selection for a specific factor. For example he says: "I contend that pullets of fine texture lay too early, and if they begin to produce eggs before they are ready, the yolks are immatured, so to speak, and the pullets are ruined as regard size of egg."

My view is that early maturity, being correlated with high fecundity, continuous selection for the latter factor results in early laying. The bodily development is checked, because the necessary food for both production and development cannot be consumed; the reproductive organs develop with the body, a check to the one is a check to the other, neither reach their normal size—hence the small egg. Mr. Powell - Owen speaks of an "immatured yolk," that is a very different thing to a stunted ovary. "Grading in Different Seasons" is an important and interesting chapter, for it is on this point that many a beginner goes wrong.

To my mind the weakest chapters in the whole book are those entitled, "For the Defendant," and "Witnesses for the Defence." **Qui s'excuse, qui s'accuse.** It is not up to Mr. Owen to defend his case, but to **prove it.** His witnesses for the defence would be invaluable to counsel for the prosecution. For example: A pen of five pullets finished sixth at Burnley, laying 910 eggs in 48 weeks, the average being 187 eggs per bird—the highest record 207, the lowest 141; so that the system did not prevent the inclusion of a comparative dud. Or again—At the Bentley test, one pen of Wyandottes finished 14th in 65 pens, the average per bird was 186 eggs, the best records being 217 and 226; but it included a pullet with a record of only 128. Another pen of Light Sussex is given, which secured a first-class certificate at Bentley. In the eleven months they averaged just over 159 eggs per bird, the highest record being 185, but included was one bird which laid but 92. Some of these averages have been closely approached with large flocks on commercial egg farms, which have not been very carefully selected.

I do not wish to dwell on this side of the question, as I am not anxious to be involved in any further controversy on the subject. Mr. Powell-Owen's book will appeal to all who are interested in the handling system. It is a very controversial subject, in which no two persons see eye to eye, and it is very difficult to anyone who does not wholly agree with the author of the book to review it. I am pleased to note that so far as selecting breeders by trap-nest records are concerned, that we are in accord. It is many years since that I advised readers that the best breeders were hens with records of 180 to 220 eggs, mated to males with dam's records of round about 240.

PRESTON AND DISTRICT UTILITY POULTRY SOCIETY.

I have promised to lecture to members of the above Society, which is run in conjunction with the Lancashire Utility Poultry Society, at Cafe Orient, Friargate, Preston, on Wednesday, March 19th. The subject will be "Nutrition," and on the following night to members of the Blackpool Society at Blackpool. I have pleasant recollections of previous visits to both places in connection with the National Poultry Council, and am looking forward to this one.

CHICKS AND HENS.

I am really ashamed to keep repeating the warning against exposing chicks to these cutting winds, but never a day passes without someone writing of losses which are directly traceable to this cause. For example, a lady wrote to say that she was losing a large number of chicks running with hens. On inquiry I found the hens were not cooped, although most of the chicks were not a week old. Now just observe a hen running with chicks. They begin to bleat because of the cold; she begins to scratch, thinking they are hungry; the more they bleat the more she clucks and scratches, instead of hovering them. Result: Chill, and in two or three days they begin to die off. In the coop, if they bleat she doesn't scratch, but gathers them under her wings. Brooder chicks, if shielded from the cold winds, will spend a long time out of doors, and take no harm, especially if there is sunshine, but if they have no shelter from the wind they will not stay out even in the sun. Then we get complaints of leg-weakness, etc. Again, it is the little things that count. It makes a tremendous difference, too, to fertility if breeding stock is sheltered to some extent from the bitter winds.

One more word as to eggs examined which have failed to hatch. A large number have come to hand this week, and in 75 per cent. of the cases the fault has been with the eggs, and not with the incubator—that is dealing with nearly 17 dozen eggs this week. I can only attribute this to stock birds being: (1) Out of condition. (2) Mating immature cockerels. (3) Inactivity of the males owing to exposure. There is always a greater amount of infertility at this season, and also of weak germs. Will members please note that it is not a bit of good sending two or three eggs for me to express an opinion as to the failure of a hatch? Three came this week; one was clear, one addled, and in the other the chick had died about the 19th day. How was it possible to express an opinion? Please don't send them through the post; in 99 cases out of a hundred several of them are smashed, and it's a beastly mess to have to handle, especially when the letter giving particulars is enclosed with the eggs, and is enveloped in the messy contents.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Modern Poultry Feeding.

By TOM NEWMAN.

WET MASH AND CHICK REARING.

A reader reproaches me with the fact that I have never written anything on the question of wet mash feeding for chicks, and suggests that I am prejudiced against it, which is very kind of him indeed. One tries not to be prejudiced, and, indeed, I can almost say that I became a "dry masher" because I was prejudiced against it, and, being aware of the fact, resolved to give it a thorough trial, and so became a convert, my conversion being duly announced in these columns some eight years ago—much I am afraid to the disgust of certain readers who had loyally supported me in a series of articles which I had written against dry mash feeding. However, as I have repeatedly said since then, given equal conditions, there is nothing to choose between the two systems as far as actual results go, and I am a dry masher solely on the question of labour. There is one thing to be said, you will get better results with table poultry with wet mash, a fact which is easily explainable.

Now to turn to chicken rearing on wet mash, one has to consider numbers in the first place, and some little dishes which would be very useful for a dozen or two are out of the question where larger numbers are concerned. Infertile eggs from the incubators boiled hard and mixed with bread crumbs are often recommended, but in these I have no belief, for the reason that the chick has still to deal with the yolk which it has absorbed into the abdomen just before hatching; secondly a hard boiled egg is very indigestible; and thirdly, that some years ago it was demonstrated in America that it was the cause of a high mortality. It is all nonsense to talk about its being nearer to nature, because there isn't anything natural about a hard boiled egg. If you wish to give egg food, the best way is to well beat the egg, and then incorporate so much coarse oatmeal as will enable you to feed it in a crumbly condition. Another food which one sees frequently advised by wet mashers is boiled rice dried off with ground oats. This is not to be recommended, for, in the first place, rice is almost a pure carbohydrate, deficient in protein and woefully deficient in mineral salts, particularly lime salts, and its continuous use is likely to cause diarrhoea, although it is very useful as a cure of that trouble, especially if a little powdered starch is sprinkled over it. Even then it is advisable to know the cause of the outbreak, or you may be adding fuel to the fire.

The first meal may be: Good biscuit meal, scalded and dried off with fine middlings and broad bran; if the bran is not good, use middlings only. If possible, skim milk should be used to mix this mash, scalding the biscuit meal with it. The biscuit meal, which is the refuse from the biscuit factories, is not suitable for the purpose, as it contains too much starch and sugar. If milk is not available, then it would be advisable to add 5 per cent. meat and bone meal to the above. This can be repeated twice daily. And another good mixture is: Sussex ground oats one part, maize meal half part, and middlings three parts. Three soft feeds a day are sufficient for the first month, with a little grain feed to provide scratching exercise between each, and a slightly heavier one as the last feed. Another most useful mash would be fine white middlings, mixed to a crumbly condition with skim milk. If the latter were available, I would prefer this to either of the former formulas, and give it twice daily and number 1 once. This would be a good system to follow for the first six weeks, and the chicks will make rapid and healthy growth on it. You all know the value of milk, so that there is no necessity for me to dwell on that.

After the sixth week the following mash will be found to give good results:—1 lb. of good broad bran, 4 middlings, 1 biscuit meal, 1 Sussex ground oats, ½ fish meal. For a change maize meal can be substituted for biscuit meal, and meat and bone meal for fish meal; a little variety is always good. Green food should be supplied ad. lib. Complaints often come to hand that chicks do not feather so well on wet as on dry mash, but this is generally due to the mash being fed in too wet a condition; this should be carefully avoided, as a sloppy mash will cause serious digestive trouble. If there is any sign of leg weakness, a little bone meal may be added to the above formulas; but this will not occur from any deficiency of lime phosphates, unless pure meat meal is used as the only form of animal food.

Talking of table chicken, Mr. R. F. Daintree writes: "We have nearly 400 chicks hatched now, these are doing exceptionally well, as we have had terrible weather for young stock all this month. Our birds are all fed and reared as you advise in 'Eggs.' We have some very fine birds hatched in November, they are really profitable for table hatched then, and have been no trouble to rear."

It is singular how much easier to rear are these chicks hatched in November, as compared with chicks hatched in June or July, and it must be that they are hatched from a better egg, which seems to prove very conclusively that heavy laying does deplete the egg of those constituents which go to the building up of a healthy vigorous chick. Of course, this is not a new idea, I have pointed it out repeatedly before, but one cannot hammer it in too often. It does go to show how little effect the environment has on the pre-natal influence, as in June and July it would be as near the ideal as we can hope, both as regards vegetation and climatic conditions, and yet June and July and even May-hatched chicks will not compare with those hatched from November to the end of February.

Here is a question from a reader with regard to a fattening formula, which is not giving the results he expected:—Equal parts of middlings, ground oats and maize meal, mixed with sour skim milk. The mistake is in the quantity of maize meal, and if barley meal were substituted for this there would be a great improvement, as maize meal results in the accumulation of internal fat, and does not tend to produce the quality of flesh which is desired, a little does help, but this quantity is excessive. There is a tendency, too, to feed birds for table on a mash which is too sloppy. It is quite a different thing when they are being crammed by an experienced crammer—I am speaking of the amateur who simply dumps down a sloppy mixture and expects the birds to fatten on it. It should be a little more moist than the wet mash fed for egg production, that is all. If chat potatoes can be obtained they will be found a most useful feed with Sussex ground oats. In reply to a reader who wishes to know how to use these for egg production and is also lucky enough to be able to get malt culms at 6s. per cwt. delivered, the following would be a good mash:—Malt culms 2 parts, middlings 4, potatoes 3, bran 1, fish meal 1.

DRY v. WET MASH—GLAMORGAN LAYING TRIALS.

The Glamorgan Laying Trials demonstrate that we can obtain equally as good results on dry as on wet mash. In spite of the fact that the dry mashers have a good lead, I would not like to assert that dry gives *better* results than wet mash. The trials began on October 14th. There are four birds in each pen, Nos. 1 and 3 get dry mash and the others wet. The wet mash birds get as much as they can clear up, the dry mash have the hoppers always open. The mash used is my old formula of 2 lbs. bran, 4 middlings, 1 each maize meal, Sussex ground oats, and fish meal. A grain ration of equal parts wheat, maize, and oats is also fed. The report is brought to end of the 16th week on February 2nd. At that date the wet mash birds had laid:—588 first grade eggs, and 1,370 second grade = 1,958 eggs. Those on dry mash:—676 first, 1,972 second grade = 2,648 eggs.

Thus the "dry mashers" lead by 690 eggs, and neither can claim any advantage as to grade of eggs laid. In respect to the number of second grade eggs laid, it should be noted that first grade eggs must scale 2 ozs. throughout the trials. There are 240 birds engaged in the test, and the leading pen, No. 24, has laid 163 eggs, an average of 41 eggs per bird, which must be considered exceedingly good. No. 3 has laid 11 more eggs, but has 4¾d. less in value owing to grading. No. 21 takes the 3rd position with 162 eggs. The 4th position is held by pen 4, the number of eggs being 137. This pen has done remarkably well as to size, having laid 116 first grade eggs. This is in the heavy breed section. In the light breeds, Pen 16 leads the whole test with a record of 162 eggs, 90 of which have been first and 72 second grade. No. 6 holds the second position with 157 eggs, No. 2 the third place with 145 eggs, and No. 10 the 4th with 151. The consumption of grain per bird is the same with both lots throughout the whole period, but the consumption of mash has been greater by the dry fed birds, as one would expect in view of the increased egg yield.

LECTURE AT MANCHESTER.

The ninth of the series of Poultry Lectures, under the auspices of the Manchester Agricultural Committee, was held on Friday evening, February 22nd. 1924, at the Withington Town Hall, Councillor Will Melland presiding.

In his opening remarks, the Chairman was very enthusiastic in his praise towards the Poultry Keeper and Allotment Holder. He said that the combination of the two enter greatly into the social welfare life of the city, tending only for betterment of the citizens generally. It is to be hoped that social workers and their kindred societies will support a movement which may prove helpful in the many difficulties to overcome from the work they are endeavouring to carry out.

The permanent tenure of "plots" for the citizens is, therefore, worthy of prompt and serious consideration, and hearty co-operation from those who are actually interested in the welfare of the citizens must be a stronghold to a cause, the objects of which are counter-attractions, providing useful recreation, fulfilling the finest ideals these welfare-workers have at heart.

Councillor Melland introduced to the meeting Mr. J. L. Whytehead, an Inspector of the Small Live Stock Department of the Ministry of Agriculture and Fisheries, who would lecture on "Practical Poultry Management."

The Lecturer was not a stranger to the city, having previously enlightened our Poultry-Keepers with advice from his fund of poultry knowledge, who had a treat in store. Lantern slides are always a great attraction, and an evening with the "Movies" was greatly appreciated.

Mr. Whytehead had very carefully planned out his subject, and with the aid of his slides, went through practically every stage of importance to the poultry man.

To those who had followed the series of lectures, much benefit would be obtained, the Lecturer confirming many important points which had been stated at previous meetings, but, with the help of the pictures, it fixed more clearly in the mind the true meaning.

Many questions were asked.

A very hearty vote of thanks, and the hope that the Lecturer would pay another visit, closed the meeting.

VALUE OF THE MALE BIRD IN PRODUCTION.

By HARRY EMBLETON,

Poultryman, University of Arizona.

In order to find out what part the male bird exerted in either increasing or decreasing egg production, the writer carried on an experiment with the following results:—

The flock average in our S.c. White Leghorns ranged from 130 eggs to 140 eggs, and no matter what changes were made this could not be increased. At that time four cockerels from a hen which had laid 280 eggs as a pullet, were purchased, and mated to the flock which averaged 130 eggs. From this mating 70 pullets were matured, and then trap-nested for twelve months.

In checking up on the trap-nest records at the end of the twelve months' period, it was found that

25 per cent. of the seventy pullets had averaged 216 eggs, and the range in production in this group was from 200 eggs to 243 eggs.

Seventy-seven per cent. of the 70 pullets averaged 190 eggs each, and but very few remaining went below 140 eggs.

This increase in production could only have been brought about through the influence of the male, for the birds were in the same houses, getting the same feed, and being fed by the same feeder. And the most encouraging part was that the increase was brought about in one generation, thereby assuring quick results. There is no one thing that could be done to increase egg production that would give quicker results than the use of a male from a high-producing dam.

Putting this information on a dollars' and cents' basis, it would mean that if a male from a good-producing female was mated to 15 hens in the spring for a period of three months, and with a normal spring production of 50 per cent., 169 pullets could be matured by fall from this mating, allowing for all normal losses.

These 169 pullets, according to the results obtained in the experiment, would average five dozen more eggs due to this male bird. At 30 cents a dozen this would mean an increase of 253.50 dollars obtained from these pullets over and above what would have been obtained if this male had not been purchased.

The above will give some idea as to what can be paid for males of this kind, and still come out on top financially.

Correspondence.

LEG-WEAKNESS.

To the Editor of "Eggs."

Dear Sir,—I have read with interest the notes on Leg-Weakness in last week's "Eggs." My contention is the root of the trouble is wrong systems of brooding. Take the best hovers on the market, the respective makers talk only of the right temperatures, plentiful supply of air, and the fumeless design of same, and yet the Poultry World is still seeking the "Ideal" system, which is possible at the expense of a little study, and reasoning with a hen and brood under one's nose.

The brooder systems in general use all lack in the two most vital necessities a chick needs, and I am not referring to temperature, but moisture, and the right sort of fresh air—Nature's pure air, I mean—not the kind that intermixes with the heated and contaminated air of the brooder house. One may say what they like about the purity of air in their brooder houses, but dare they to gamble all they possess that the air inside their brooder house is as pure as that in the open outside? Of course not. Yet Biddy's chicks get this outside quality of pure air and moisture in addition.

The system I work on I get these as near as possible under artificial conditions, and with good feed and sunshine, and I do not get leg-weakness or other chick troubles. Pure sun rays is Nature's premier tonic for all alike, if taken in its proper proportion to the needs of the particular life's demand, so one must let the chicks have sun rays; when they get cold they run to Biddy or the hover for a warm up—Nature's way of preventing a chick having too much of a good thing.

Now, as to my brooder system. I have a 6ft. x 6ft. brooder house, a Pioneer hover inside; the floor of the house is near the ground; a space is cut out of the floor, and replaced with a perforated zinc frame, and I use straw chaff as litter. Now the chicks under the hover get the right warmth from the hover. The heat penetrates through the zinc frame, strikes the earth directly beneath, which causes moisture to rise as with Mother Earth. Lie down for a while and see what occurs to the undermost part. Many of us know from experience in the Army how damp one's clothes get at night time, and that is when the chicks spend the greater part of their time under Biddy or the hover. So that is the moisture problem settled.

Now the air Biddy's chicks get does not pass through her heated body, but from outside—the natural pure air. Her feathers screen this air from coming in draughts. The air my chicks get is drawn through ventilators at the bottom of the house, under the floor, up through the zinc frame and litter, to the chicks. The moisture comes up at the same time and in the same way. The very same things happen under Biddy.

If any readers of "Eggs" are interested in the above, and try this system, I can assure them of the absence of Leg-Weakness, and that they will get healthier chicks. This is experience, not theory.

Yours faithfully,
"A LITTLE MAN."

P.S.—If "Eggs" were 2s. a copy, I'd have it. It's the Poultryman's Bible.

FIRST CROSS LAYING TEST.

To the Editor of "Eggs."

Dear Mr. Newman,—Anent your leader and also letters from various correspondents. I feel alarmed at the laying test proposed by the "Daily Mail." Surely the results of half-a-century's hard work by a handful of sorely-tried pioneers is not to be washed out by the test proposed?

Of course, so many people urge the extra vitality of the cross-bred bird, but this I emphatically deny. The pure bird is, and always will be, equal in stamina to the cross-bred, provided, of course, commonsense methods of management and rearing are employed. Is the mongrel a better layer and payer than the bred-to-standard bird? I say, No! I have yet to see it proved that any man can work according to Oscar Smart with a lot of mongrels. What a handsome lot of sports and retrogrades we should have? I may be getting into hot water, but I should like to propose a boycott of this test on the grounds that England has lost quite enough foreign trade of late years without losing also her prestige in the pure-bred poultry world, as this is most certainly what it means if people are allowed to enter their dark-legged Black Leghorns, their single-combed White Wyandottes, and all the other retrograde mongrels that one will get at all times, and whose HONOURABLE place and end, should be the local market, and NOT a prominent English Laying Test, watched by poultry-farmers the world over.

Apologising for monopolising your valuable space.

SYDNEY F. COOPER.

(We cannot endorse our correspondent's suggestion that the test should be boycotted, and we hope no further reference will be made to this proposal. We have made our protest, as we felt compelled to do, and our columns are now open for discussion. It is for the individual breeder to define his attitude to the test. We had no idea of inaugurating a campaign against it.—Editor).

CO-OPERATIVE METHODS.

To the Editor of "Eggs."

Dear Sir,—At our Third Annual General Meeting, held on the 28th ult., the members expressed the desirability of publishing in the Poultry Journals a *resumé* of our Association's activities as presented by our President, Mr. K. E. Field-Hart, holding that it would be of interest to all poultry-keepers to know that such an association as ours has proved an undoubted success and indicated that similar organisations might be advantageously formed for other districts in the country.

The membership has increased during the year from 126 to 172 members. Orders have increased from 110 to 232 per month. The monthly bulk tonnage of foodstuffs handled inwards has grown from 64 to 193 tons in one month. The monthly value of the turnover in foodstuffs has expanded from £873 to £1,417 in January, 1924. The sale of foodstuffs to members in 1923 totalled £14,300, as against £7,112 in 1922. 10,704 eggs have been collected in one week, as against 2,364 per week in the first month of collection. During the year the capital has been doubled and the profits have been more than doubled, enabling us to pay 6 per cent. to members and write off several hundreds to Reserve Account.

There is every prospect that in the coming year we shall be enabled to considerably increase our turnover, and as we save from 10 per cent. to 20 per cent. to our members it will be recognised that on a turnover of probably £18,000 to £20,000 the saving to members of such an association as ours makes all the difference when the annual profit and loss account is worked out.

Any further information desired by your readers will be very gladly given by the Secretary.

Yours faithfully,

P.Pro. Heathfield and District
Poultry Keepers' Association, Ltd.,
G. H. COATES, Secretary.

BROODERS AND DISEASE.

To the Editor of "Eggs."

Dear Mr. Newman,— With reference to your remarks on leg weakness: "Is it disease or merely symptomatic?" I am not surprised that you have had a number of letters on this subject. I emphatically believe, from many years' careful observation of this trouble, that it is a symptom not of any organic disease, but of digestive trouble caused by debility, brought about by faulty brooding conditions. It is very prevalent with early batches.

I believe you are aware of the principle of the brooder I now use—that is, a central heated appliance raised four inches off the floor, enabling a constant current of air to surround the base of the platform. In fact, the flame itself depends upon the air it receives beneath the floor. For two seasons I have had no sign of leg weakness, and this year already I have nearly 3,000 healthy chickens reared by this method. Surely our brooder methods require serious readjustment.

With reference to brooder pneumonia, surely this is widely common this year because of the extreme weather conditions, as 'flu and pneumonia are likewise in the human race. Brooder pneumonia can be avoided, but not whilst our primitive methods of brooding are continued. I should like to see you start a definite campaign against the evils which surround this important factor of our industry, and I would give you every support in this matter.

Yours very truly,

JOHN MEEKINGS.

DISINTERESTED CORRESPONDENCE.

To the Editor of "Eggs."

Dear Sir,—It is a hopeful sign of the times to see it voiced that most (if not all) of the rival poultry societies should join hands. As far as I know there is but one country where a poultryman can rely on obtaining absolute disinterested information on modern poultry husbandry—and that is America,* through the medium of her departmental agricultural experiment stations, who issue monthly bulletins free to poultrymen dwelling in that department (or state), faithfully describing experiments carried out in their ex-

* And Australia?

periment station. The reader may be perfectly satisfied that here is no artifice for some private poultry breeder or appliance maker to "blow his trumpet"; he may digest the information with the knowledge that it has been written down with the sole purpose of trying to help him to improve the standard of his farm, and that nothing but tried expert advice is being offered him.

Now and then we are honoured in your columns with an excerpt from "Poultry Science," an American journal, compiled by the American Association of Instructors and Investigators in Poultry Husbandry, and the only articles admitted in that journal are those submitted by contributors (instructors, investigators or others) who have no axe to grind. *There are no correspondence columns!*

The National Poultry Institute is a step in the right direction. But when will the day come when we may have (all over England and Scotland and Ireland) a County Experimental Station in nearly every county, who will issue publications such as those issued by the American stations? Then, and then only, can we hope to raise the standard of poultry husbandry in the British Isles.

Yours, etc.,

M. S. M.

LEG-WEAKNESS.

To the Editor of "Eggs."

Dear Mr. Newman,—Mr. Somerville's letter to you again brings up the question of Leg-Weakness, and it might be useful to those who are now suffering from this "symptom" among their chicks to refer to an article which was published in "Eggs" (April 4th, 1923, page 222), in which I pointed out what had, in my opinion, been the cause of the epidemic of Leg-Weakness last season, namely, a climatic one.

A similar climatic condition is with us now, so I take it that the cure should be the same, namely, Increased HUMIDITY.

Mr. Somerville's and Mr. Harnett's letters both go to corroborate this. The one increased humidity by making holes in his brooder floor, the other by emptying a bucket of water on to the floor.

Owing to unforeseen circumstances, I am prevented from carrying on any research this season on these lines, but had I been able to do so, I should have had my brooders placed on the natural earth with a three-quarter inch mesh wire netting stretched over the earth, and brought up the sides of the brooder to make it rat-proof.

I should have dug a ditch all round the house some 18 inches deep with a "soakaway" at one corner, regulated by a small "hatch."

If the ground became sodden with wet the surplus water in the ditch could be drained away.

If, on the other hand, the ground became too dry, the hatch could be closed, and the ditch filled with water.

There may be some who would like to follow up this idea, and if so they are welcome to it, but in return please publish results.

Yours truly,

J. C. CLAYTON, M.R.C.S

Ferozepore, 66, Brondesbury Park, N.W.2.

February 28th, 1924.

HEAVY LAYERS AS BREEDERS.

To the Editor of "Eggs."

Dear Sir,—I have recently noticed several queries as to whether the very heavy layer is a good bird to breed from. My experience has been that it is not, and further that it is almost impossible to breed from it. Eggs from these abnormal layers very rarely hatch. There is no doubt the best birds to breed from are those which have proved themselves good layers of good-sized eggs, and that are full of stamina and vitality. Breeding pens should be made up of birds of this description. I would far rather head my breeding pens with a cockerel bred from a dam which laid 200 eggs than one **supposed** to have been bred from one that laid 300. I am very sceptical of these birds (much advertised) from very high record hens. I am not alone in my experience that eggs from these abnormal layers are almost impossible to hatch, and when they do they are not worth hatching. I have been comparing my experiences with several other breeders, and theirs has been the same in every case.

Yours faithfully,

P. B. ADAMS.

Hayward's Heath.

WHICH BREED FOR THE SMALL MAN?

To the Editor of "Eggs."

Dear Sir,—Among the several breeds recommended for the "small man" in "Eggs," I notice that no one has had a word to say about the AUSTRALORPS.

Being a small man myself, perhaps my experience with the egg-laying capabilities of this breed may be of interest to Mr. Richards and other of your readers.

Arriving home from India in the late autumn of 1922, I made enquiries as to a suitable breed for a man who wishes to keep fowls in a small way, more for a hobby and for household requirements, than with the idea of selling eggs and stock; and, happening to meet Mrs. Ward-Jackson, who was enthusiastic over her Australorps, I promised to apply to her for a pen when I settled down. This I did, and on 2nd January, 1923, received from her a 1922 cockerel and four 1921 hens—the latter lately imported from Australia—all the birds being "highly connected."

During 1923, and in spite of heavy moults and a change of residence from near Farnham to this place in the Cotswold Hills, my four hens laid 335 eggs, and this in their second year. From them I reared 10 pullets in March, 1923, and below I give the record of their laying, from date of commencing to 29th February:—

No. 1	began laying	21st Aug.	has laid	112	eggs in	193	days.
No. 2	,, ,,	31st ,,	,,	101	,,	183	,,
No. 3	,, ,,	2nd Oct.	,,	118	,,	151	,,
No. 4	,, ,,	6th ,,	,,	76	,,	147	,,
No. 5	,, ,,	3rd Nov.	,,	54	,,	119	,,
No. 6	,, ,,	5th ,,	,,	94	,,	117	,,
No. 7	,, ,,	5th ,,	,,	62	,,	117	,,
No. 8	,, ,,	7th ,,	,,	86	,,	115	,,
No. 9	,, ,,	21st ,,	,,	48	,,	101	,,
No. 10	,, ,,	30th ,,	,,	58	,,	92	,,
			Total	809	,,	1335	,,

During November the 10 pullets laid 154 eggs; during December, 205; during January, 134; and during February 176. All the pullets except No. 1 laid 2oz. to 2½oz. eggs; No. 1 consistently lays a 1¾oz. egg.

I do not say that the above records is in any way extraordinary, but I do say if anyone wants to try a breed that is wonderfully tame, that will not get over a 3ft. fence, and that is a fine winter layer, try AUSTRALORPS.

Yours truly,
H. R. BAKER (Lieut.-Col.).

THE "DAILY MAIL" TWELVE MONTHS' LAYING TEST.

Particulars of the above test for first-cross pullets, which is organised by the "Daily Mail" in co-operation with the London and North Eastern Railway Company, and which starts on October 18th, 1924, are to hand.

The test is to be divided into four sections, namely: White Leghorns x White Wyandottes, Black Leghorns x R. I. Reds, any other first-cross, any cross showing sex linked inheritance. There will possibly be some surprise that the male in these two first-crosses should be of the heavy breeds.

A list of the crosses which show sex-linked inheritance has been given.

The 1st prize is £50; 2nd, £25; 3rd, £15; and 4th, £10. Entries close on the 1st June.

The test will be under the supervision of Mr. J. N. Leigh, and all letters should be addressed to him—"The Daily Mail" Test, L. and E. Farm, Bentley, Suffolk.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post **by the Editor** by virtue of their membership (**NOT from Capt. Leeney**).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

E. L. G. B. (Pinner). A good dry mash for pullets which would probably be used for breeding in their second season, would be: 2lbs. bran, 4lbs. middlings, 1lb. maize meal, 1lb. Sussex ground oats, and 1lb. of meat and bone meal or fish meal. If you will send 6½d. for a pamphlet, we will give you the whole system of dry mash feeding from the shell to maturity. Owing to lack of space I cannot give it here.

G. W. (Allborough). As regards dry and wet mash feeding, the results are practically the same, but if you were suddenly to switch your birds off wet to dry mash, there would probably be a big drop in the egg yield. Your mash, as constituted, should give very good results. If you feed it dry it would require slight alteration. It would be better not to change it now, but begin by rearing your chicks on dry mash, as this means much labour-saving when you have large numbers to rear, and the results are equally as good as when fed on wet mash.

E. W. (Barrow-in-Furness). The suggestion that you hatch from mid-March to early August in order to get a fairly regular supply of eggs, is really rather absurd. In the first place your mid-July and early August chickens would probably not come on to lay until February, and then their eggs would be small, and it is more than probable that the birds would moult in August, so that they would be altogether an unprofitable crowd. If you hatched one lot of chicks in January, and early February, another in mid-March, and another in mid-April, you should not have the slightest difficulty in obtaining a regular supply of eggs all the year round. It certainly does not pay to hatch chicks for egg production after mid-May, and personally I would not hatch after the end of April, having due regard to profitable production. The pamphlet could not have been written by anyone who has had any practical experience.

F. J. D. (Horndean). I cannot definitely say that the suggestion of wire netting in your brooder, which, I presume, is the bos type, would remedy the outbreak of leg-weakness. It would not do so, unless there was ventilation between the wire and the floor of the brooder, but you might give it a trial, as I cannot think it would do the least harm. It would, of course, only be an inch off the floor of the brooder. In the case of small eggs, if this is due to the birds being in under-condition, the best thing to give would be an additional quantity of maize, either adding another five per cent. to the mash, or giving kibbled maize as the grain feed. I do not know your corn merchant, but unfortunately my formulas are often made up with foods of very inferior quality.

H. S. C. (Rawreth). The sample of broad bran No. 1 is only a moderate one, and cannot in any sense be called broad; it is not good enough. No. 2 is a little better, but neither are really good samples of broad bran. The maize germ meal No. 1 and 2 are both equally good; there is little to choose between them. The Sussex ground oats at 14s. 3d. are really good value, nearly as good as those at 16s. I cannot detect any bitter taste about the No. 1 sample, nor can I imagine what would cause it. It would only be detrimental if it was unpalatable.

"Depth" (Otley). I am sorry you were disappointed to read that I consider 10ft. an unsatisfactory depth for a large laying house. My preference is for a 12ft. house, but others like them 14ft. If they are of the lean-to type, I certainly prefer the 12ft., as I consider the ventilation is better.

E. W. R. (Southend). You will see in another column an article on "The Preservation of Eggs." Galvanized tanks are used with success with lime-water. I do not know what chemical effect the action of the waterglass would have on the newly-painted bath. It is unnecessary to boil all the water, and you will note that lime-water is considered superior as a preservative and cheaper than the water-glass solution. I cannot give you the address of a firm who would supply water-glass wholesale. If you can purchase the maize siftings at 4s. 6d. cwt., then they are indeed cheap, and there is plenty of food in them, as you say, but of course the percentage of maize chaff is rather high. I should use four measures of bran, four middlings, one-and-a-half maize siftings, one Sussex ground oats, and three-quarters meat meal. I should not cut kibbled maize out of the grain. It would make a good wet mash; but in that case do not scald the bran, but use this to dry-off the remainder of the ingredients with.

"Beginner" (Bentley). If your birds are suffering from continual diarrhoea, there must be something wrong with the feeding, and perhaps you will send me samples of the foodstuffs you are using. To save time I suggest that you replace the fish meal with a good sample of meat meal, and please note, that the parts are by weight and not measure. I expect the fact that your Rhodes are laying eggs with three or four thick rings has something to do with their bodily condition. Are they at all over-fat? With regard to the combs of some of your White Leghorns having become very white. This sounds to me like favus, and it is contagious, but a benign disease. You will be well advised to bathe the combs several times with a two or three per cent. solution of Izal. Bumblefoot is generally caused by the birds jumping from too high a perch on to a hard floor. Prevention is better than cure. The only cure is to cut out the core, but unless you are quite an expert you had better not attempt this.

"Woodbine" (Slaggyford). The Sussex ground oats are a good sample, but at 18s. a little high in price. The bran, although good value for the money (7s. 6d. cwt.) is hardly good enough in quality. Cannot you get something a little better? The maize meal, 10 stone for 15s. 6d., is excellent value, but the middlings at 10s. are only just fair, they contain a good deal of ground-over bran; but I get considerably worse pass through my hands at 1s. 6d. cwt. more.

F. W. H. (Bury St. Edmunds). I think the shell grit would answer your purpose. At any rate, at the price it is well worth a trial. With regard to bad-shaped and thin-shelled eggs. No, this is not entirely a matter of strain, although individual birds often lay a large number of such eggs, and it seems as if some of our highly-bred strains of Wyandottes, which are often bred without regard to selection, have a tendency this way.

A. R. (Rockferry). There is nothing wrong with your feeding, and I can only conclude that the cross-bred pullets are poor stock, and they were rather late hatched. Although the average of 18 eggs per bird is not good, it is quite fair. If their combs look quite pale, have they had an ample supply of green food? See what you can do in this way.

C. L. N. (Forest Hill). The following dry mash formula would answer very well for your Wyandottes and Leghorns kept under the intensive system:—2lbs. bran, 4lbs. middlings, 1lb. each Sussex ground oats, maize meal and fish meal, or meat and bone meal. This should be always before the birds. As a grain feed give a small scratch feed of wheat in the litter as the first feed. Open the mash hoppers about 8.30, and half-an-hour before they go to perch give them 1½ozs. per bird of two parts kibbled maize, one wheat, and one good sound white oats, also in the litter. You will recognise the importance of plenty of scratching exercise in order to keep the birds in condition.

"Neffo" (Cox Heath). The sample of maize meal you send is quite a good one, as is the alfalfa, but the middlings are rather poor, and not good enough to feed. The ground oats are good average quality. The bran is very good. The fish meal a fair sample, and the quality of the grain is excellent. With the exception of the middlings all the samples you send are first-class. Judging from your results of the cross-breds, I should say that you have, as is always the case, some good birds among them, and some "duds," and that the good birds began to lay in September, and a few of them suffered from layers' cramp, and that in December these birds went into a partial moult; hence your very low output during January and February, when the egg yield ought to have improved. With regard to your friend's mash, I have no doubt that the improvement has begun now, because the birds are coming into their natural laying season. I think the formula he has given you a very bad one, as to include malt culms, gluten feed and meat meal in the same mash, in the proportions he has given, is rather ridiculous. You would do much better to replace the gluten feed with S.G.O. As it is, the albumenoid ration is far too high.

"Perplexed" (Berkhamstead). If your mash is before them all day I think it would be advisable for you to add another part good broad bran, as there would be a tendency for them to become over-fat. Certainly the yield of 20 eggs from 100 pullets per day, is very unsatisfactory; but we do not know in how far the stock itself is at fault. I do not think there is much wrong with the feeding. It is quite unnecessary to give the chicks anything to drink for the first 48 hours, but a little goats' milk diluted with warm water would not hurt, although it is best to keep them quiet. I do not recommend the cooling of eggs in an incubator.

E. B. (Biddenden). With reference to the mash for chicks four weeks old intended for fattening for cockerels. The proportion would be: Four sharps, two S.G.O., half maize meal, and half fish meal. These parts are by weight. I would not increase the maize meal, as if you do so you are apt to get them too fat internally.

J. C. H. (Hungerford). I have examined the twelve eggs you sent me; two were clear, and the remainder had died on the 20th day. The chicks completely filled the shell, and I believe the bad hatch to be entirely due to the methods you adopted of stopping up the ventilation holes in the incubator. This caused a stagnant atmosphere, the consequence being that there was an excess of carbon-dioxide, with the result that the chicks were suffocated in the shell, as there was no possibility of that thrown off by the embryo escaping. You should have removed the stuffing from the ventilation holes at a much earlier period, say about the 15th day. (2) The sample of clover meal you send is of fair average quality, but the price, 18s. cwt., is preposterous. You cannot feed fowls economically if you pay such a price as this for a food which contains such a comparatively small amount of nutriment. If the old cockerel has failed you, you could mate the son of these hens. Although his dam's record was only 203 she did remarkably well in the winter to put up a record of 60 eggs, and I think her failure to do better was entirely due to the fact that she went broody in July, and you allowed her to rear a brood of chicks, and get slightly out of condition, and so moulted.

A. D. (Poulton - le - Fylde). Please read the article on preserving eggs published in this issue. I think your two-gallon cream tins would answer very well. Failing these, earthenware jars are the best thing.

H. K. (Bolton). With regard to sprouting oats. This is a common practice on the farms in the United States. The best way of doing this is to allow the oats to soak for twenty-four hours in chilled water, then spread them out on trays on the bottom of which holes have been drilled, and keep them just moistened with water two or three times a day. It is necessary, of course, to have in the winter some artificial heat, so endeavour to keep a temperature of between 60 to 70 degrees in the house or room in which they are sprouting. Economy comes in the Diastase in the germinated oats. They assist in the digestion of the starch, and you have the greater bulk in the food. Boiling grain would not have the same effect, as this only breaks down the cellulose envelope with which the starch granules are surrounded. I am of opinion that the oats would be more economically fed if they were only just sprouted and not wait until the sprouts turn green. You would not lose any of the mineral salts in the water in boiling fish, but, of course, the fish bone would supply plenty of lime phosphates.

POST-MORTEMS.

E. P. for Mrs. H. Both were chilled; one having pneumonia and the other peritonitis.

"Monteagle." Both chicks had pneumonia. The "leg-weakness" is intoxication through the blood, and want of co-ordination, not really anything to do with the legs. They are like the limbs of a drunken man that won't carry him home.

F S. One of the chicks had pneumonia, and the other's lungs were quite bright and clear, but the abdomen was chilled and digestion entirely arrested. I should NOT call this pneumonia an infectious case, but due to the weather.

M. A. C. The chicks were victims of the weather, not of an infectious pneumonia.

A. V. C. Pneumomycosis, an infectious disease which produces tubercles in the lungs which look as if patches of liver were there. The aspergilli or mildews are widely distributed and often contained in ground grain. As it is your first experience I hope it will also be your last, but a "seventeen years'" run is good.

T. C. S. Kendal. It is nothing to do with the feeding, which could not be better. They had done well up to the time when they contracted infectious pneumonia.

Mrs. G. M. B. There was a very large shell-less egg which could not be passed. Combs will sometimes bleed extensively, as this one did, but a little blood makes a great show on a white bird. There was oyster shell in the crop, and nothing wrong in the feeding so far as a post-mortem will show it.

"H." It is important that you should know early that the chicks had B.W.D. and take what measures are possible in your particular circumstances to prevent spread of this very infectious and fatal malady. I am therefore acting on the rules of "Eggs," and notifying you by post, copy of which I enclose.

E. H. The chick had pneumonia of infectious type.

R. P. S. Apoplexy was the cause in this bird. There was no sign of any infectious disease. Too rich feeding or spices are among the contributing causes. This pullet was also the subject of rickets.

J. and H, Mc I. This Leghorn pullet had seven yolks of more than mature size free in the belly, and a clutch waiting behind. Peritonitis was caused by them. A shell-less egg in the uterus could not be passed, and thus the road was blocked. Truly an example of "laying inside," but it is not what those theorists believe when they use the term, and imagine that eggs laid inside are again absorbed into the system. There was nothing wrong with the digestive organs. Her associates, fed in the same way, should have a fast prescribed, and some salts in mash for a week or so to reduce tension.

L. J., Bognor. The bird was emaciated, there was chronic kidney disease, the intestine was grown to the gizzard, as a result of peritonitis at some previous time; but the actual cause of his demise was heart failure. The organ was greatly dilated and its walls (auricles) no thicker than note-paper. How could his stock have stamina?

H. P. F. The tumours on wings were originally bloody warts, and could then have been easily disposed of by cauterisation, strangulation, or dissection from the skin. When left alone they get recurring injuries, and more and more blood congeals until they assume the form of hard dry tumours of ragged shapes. In some cases they are of tuberculous origin, and I should have preferred to have had the whole carcase.

B. S. B. Pneumonia was the cause in this case. It is very prevalent, owing to the damp cold. Chicks can bear dry frost, but not damp. Of 91 chicks examined by Dr. Hammond Smith, for the "Field," 52 were affected with pneumonia, and this is about the proportion found by me in 1,500 during the last few months.

J. H. E. The ducklings were affected with a spinal cord trouble, which had nothing to do with the feeding or management, but is infectious. Enormous numbers were lost from it last year, and specimens were sent by me to three bodies of research workers at different Universities, and the Ministry of Agriculture has also been investigating the disease. There is next to nothing known about it, and only by cultural operations in the laboratory can we hope to learn.

D. E. W. This chick had pneumonia, which accounts for the hurried respiration you observed. The chicks reared from pullets are not so likely to have constitutional vigour as those from older hens. It had feathered too early, and at the expense of growth, but the weather may have had something to do with it. In normal seasons I have found R.I.R. chicks grow fast when rather bare, and do not like to see early feathering, or tails sprouting out of any breed, but Leghorns, whose sex can be determined so early. Please see reports on other cases of pneumonia, and reference to Dr. Hammond Smith's figures.

M. T. D. This chick had coccidiosis, the caeca being much inflamed. The "inclination to diarrhoea" is thus accounted for. It is a very infectious disease, and chiefly conveyed by soiling of the food by droppings of birds already affected. This will tell you why sweeping up and burning litter and other means of disinfection are desirable. Give catechu fifteen grains to each gallon of drinking water. Why send your remittance to the Editor? Please read instructions again.

G. J. C. This R.I.R. had long been ill, but did not show it until peritonitis set in. The ovarium was a mass of tumours in various stages of development. No, none of the causes you mention, but the deposits of urates of sodium upon the heart and liver membranes indicate gout as a commencement. There is an article on this subject in the Editor's hands, to which your attention is invited.

"Colonel." The pullet was not affected with any infectious disease. It was a case of unequal function. Yolks were produced in quantity as well as size, which could not enter the oviduct, but were broken and flooded the abdomen, causing peritonitis. This is quite consistent with your account of good laying. She was **too** good, in fact. The remedy is to fast and lower tension by salines.

E. O. This chick had pneumonia, and had been chilled. It is always well to send two or three, as one may be a very pronounced case, and another not absolutely diagnostic. One member sent 15 recently, but I cannot examine an unlimited number, and it is not necessary to do so.

F. A. (Cornwall). Pneumonia, which has not the appearance of the infectious kind, but may become so in others.

"H. and C." (Bristol). One had pneumonia such as might be caused by chill; the other had the tubercles in the lungs which are diagnostic of the infectious pneumomycosis.

Mrs. B. There does not appear to be any dietetic reason for their deaths, and one can only suppose that infectious disease is the cause. This we cannot tell without a post-mortem examination.

G. M. H. Acute indigestion was all that I could find the matter with this chick, but there was one laburnam seed in the proventriculus or glandular stomach.

"Eggs." The liver was out of action. It was that form of fatty degeneration which results in shrinkage; the opposite of amyloid degeneration, which is about as frequent, and usually assigned to errors in feeding or to want of exercise. If the liver from any cause fails to pour its secretion into the intestine, digestion is imperfect, but there is a disposition to accummulate fat inside. This bird had a great amount, which oppressed the organs. Fasting followed by salines, such as fifteen grains daily of sulphate of magnesia or soda, is suitable treatment. She was also the subject of rickets in early life.

H. LEENEY.

DISEASES OF POULTRY.

By Capt. H. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

FOWL CHOLERA.

Several cases of this highly infectious disease have been recently received for post-mortem examination, and readers need be on their guard. Some need to be reminded of the importance of always isolating sick birds directly they are observed to be ill or merely indifferent to food. A very little trouble in removing to a safe distance may save an infinite amount later on.

I can imagine that pulpiteers get as tired of preaching from one text as I do, but we have to remember that there are always fresh and inexperienced persons coming into the poultry industry, and they are most in need of help, and of warning against making the mistakes we older members have paid so dearly to learn from. Many of the letters I get prove that an increasing number of members of this Scientific Association maintain an isolation hospital, which seems a grandiloquent name for what may be only a coop, but "t'will serve."

Among the 10,000 members there will naturally be a few who will not allow me a monopoly of the grumbling at their failure to conform with the simple rules adopted by the Editor. One of them complained this week that I wrote a long scientific explanation of a case to a neighbour (who happens to be a doctor), but only told my disgruntled correspondent "what he could have learned from a book," and he was withholding the nominal fee pending a satisfactory explanation. The non-conformists are kept waiting for replies to the letters they ought to send at the same time as the corpus delicti. It is but fair to others. Now if it happens to be a case of fowl cholera (as happened to-day) much valuable time is lost and a malignant disease is spreading, and to prevent it I break the rules myself, and write to the owner, trusting he will not follow the example quoted above.

Fowl cholera attacks all the gallinaceous birds, and it is believed also many wild species. It is now known to be caused by a specific germ to which the name of Bacillus avisepticus is given, and is what is called a bi-polar or figure-of-eight organism. Its importance in the study of bacteriology was recognised by the great Pasteur who seemed to get time for everything, even to giving me some interviews when I took a human patient to him for inoculation against hydrophobia. So long ago as 1880 he prepared an attenuated vaccine by making a series of cultures, each less virulent than the last, until one so weak as to be free from risk yet giving protection was obtained. It need hardly be said that it is in the direction of protective vaccines that the medical and veterinary professions are looking for any real success in combating disease in man and beast, including poultry; the protection afforded by disinfectants or antiseptics having proved a broken reed to lean upon, for, as one of my lady correspondents said, "You cannot disinfect a whole farm."

The bacillus avisepticus is found in the blood, the organs, and in the evacuations, and by the latter coming into contact with food, the chief danger of infection lies. This remark applies to so many infectious or contagious maladies, and especially to the intensive system, where the small area is necessarily all soiled, and birds should only be fed out of troughs or vessels from which it is not easy to spill food to be picked up subsequently.

Staining of the vent feathers by diarrhoea is an early and prominent symptom, but fails to attract attention because it occurs with many other disorders. If, however, the droppings are observed, the crown or white to grey portion, which consists of the urates, will be seen to be yellow. This is also a symptom of coccidiosis or turkey liver disease, and therefore not altogether reliable, but a green discharge mixed with sticky mucus should be a warning. By the time these signs are marked the fowl falls out of the company of its fellows, the lustre of the feathers is lost, they open or appear roughened, the head is retracted or else turned to one side, and a deadly lethargy sets in, which preludes death in something less than two days as a rule, but just a few linger on as chronics, and these are the greatest menace to the flock for reasons given above. Thirst is a prominent symptom, but digestion is suspended, and the crop often bulges with gas or fermented food last taken and not carried down. There are many ways in which the disease germs may be carried, and the period of incubation varies from one day to something like three weeks; direct inoculation producing it in the shortest time, and infection from chronics occupying the longest. In the latter it is assumed that the bacilli grow weaker, and nature is beginning to assert the laws that prevent the extermination of species. If a fresh strain is introduced by a diseased bird brought in, the virulence is increased.

Here perhaps one may answer those querists who repudiate the possibility of an infectious disease being on their well-cared-for premises. It may be conveyed by food, water, boots, clothing, baskets, sacks, and cart wheels, and wild birds. Sparrows and starlings coming from an infected yard have often been proved to be the conveyors of this disease and of coccidiosis and other maladies. The method of introduction then may not be found, but the diagnosis can be made with certainty on a dead fowl. Inflammation is present not only in the digestive organs, but there are punctiform haemorrhages in the heart, liver, and kidneys. The bowels look like those of a pig with swine fever, namely, as if they had been pricked with a needle at many points and just a drop of blood exuded into the surrounding tissue.

Treatment.—Having regard to the fact that a recovered bird remains a menace to the flock as long probably as it lives, it will scarcely be worth while attempting any; but the poultryman's circumstances vary so much that some will desire to doctor birds and keep them for the table only. Muller limits the finding of the disease organisms to six months. Carbolic acid in three to five drop doses daily has a reputation, and hyposulphite of soda in ten grain doses is well spoken of.

All bodies should be burned. No blood should be spilled in killing. All litter should be burned. It should be frequently swept up. Disinfection as far as possible should be carried out. "Sanitas sanitatis, omnia sanitas."

ANTHRACITE STOVE BROODERS.

PREVENTION OF LEG-WEAKNESS AND PNEUMONIA.

Your Editor, Mr. Tom Newman, has very kindly asked me to contribute an article on the above subject, giving results of some experiments I have made in a humble way. Unfortunately I am a better Latin and Greek scholar than a scientist, so I hope those better acquainted with the science of poultry diseases and culture will not criticise me too hardly, and I trust to make myself understood by using as plain terms as possible.

To get on to my subject. For three seasons I have been using a Hearson Anthracite Stove with a 500 chick hover. My experience the first year was with 300 White Leghorns, and I did not relish it. One has to hatch White Leghorns later in the season than heavy breeds, and, consequently oftenime, during warmer weather.

This was my experience. The first two or three days things went on all right, but soon trouble began. It is night time when the mischief is done. My brooder house is well ventilated, and has a concrete floor, but on opening the door on the fourth morning (a mild one) four or five chicks were "corpses," and about 12 others looked "sick." The air seemed very dry—terribly so, in fact. This is what I did. I went into my garden and dug a couple of barrowfulls of earth taken off a recently - cropped piece of ground, therefore, **fresh** and **clean** and **very moist**, and shot it over the floor, making it level (about 3ins. deep) all over the floor and **under the hover.** I put the chicks back, and **not another "corpse"** did I have. Last year I did the same, and I never lost a single chick, and the resulting pullets of this hatch have developed into better layers during a terrible winter here on very heavy wet clay than any pullets I have ever had in over 25 years' experience. The soil under the hover was raked out each morning—a short operation—and replaced with fresh **damp soil** straight from the garden. Result: **No losses at all.**

This season—my third with this brooder—I have still adhered to this plan, and a better and more contented lot of chicks I never wish to brood. Never overcrowd your hover. This hatch is 120 strong, consisting of Rhode Island Reds and Light Sussex of reputed strains. Now what induced me to try this "stunt?" I am a close observer of Nature, and have often watched hens brooding over both ducklings and chicks, and what does one see? A good mother with a full "clutch" never squats hard down on her family. If you insert your hand under her she seems to be in a half-standing position, and air is circulating round the chicks' legs. Why do doctors recommend that children with weak legs should have them uncovered for the air to play upon them? **To strengthen them.** I like a concrete floor because when the earth is put fresh upon it there is a retention of condensing moisture on the "face" of the concrete, whereas **boards will absorb it.**

Mr. Hamnett's experience with the pail of water mentioned in the last issue of "Eggs" (Feb. 27th) to my mind gives us Nature's answer direct, and in corroboration of my experiment with **moist soil.** Moreover, moist soil thrown **fresh** over the whole floor induces little chicks to peck up various minute "particles" (for want of a scientific word), which they seem to greatly relish and flourish upon—no doubt containing some of the **valuable vitamines.** The soil must, however, be **quite fresh** and free from any sourness or taint, and should have recently had a crop taken off it, or can be dug from round the root of a tree. I have been firmly convinced for a long while that lack of moisture in the air under the hovers of anthracite stoves has caused terrible losses. What sort of condition would a person be in who worked all day in a room with a gas stove with no pan of water on it **to moisten the air** he breathed? I wouldn't care to be that fellow.

I have tried once to induce a well-known firm of makers of these stoves to consider a plan for **supplying moisture inside the hover**, which I have tried with great success, but they turned it down.

I do not want to give it away, but am prepared to consider a small sum for my idea, which, as I have had to do the thinking and hard work connected with the same, and also bear all initial cost, is not, I think, unreasonable. I shall be delighted if Mr. Newman will invite the strongest criticism and advice of scientists on this matter, as I think, in a humble way, that I have hit on something that will help us all to save some of our appalling annual losses by defective brooding. Mr. Newman has invited me also to give another article on "Moisture as Applied to Hatching in Incubators," and I have a very interesting experience (this season) to narrate.

Many thanks to Mr. Newman for giving me the privilege of writing this article for "Eggs," which I very much appreciate, as it is read by all the poultry-men who count.

C. E. B. PHILCOX.

Lime Water for the Preservation of Eggs.

By FRANK T. SHUTT.

By the courtesy of J. H. Grisdale, Bagr. Director of Dominion of Canada, Department of Agriculture.

SUPERIORITY OF LIME WATER.

Experiments in egg preservation were begun at the Experimental Farm, Ottawa, in 1898, and have been continued every season since that date. In the course of these experiments trials have been made with more than twenty-five different fluids and preparations that have been proposed or sold as egg preservatives. The work of these fifteen years has shown the superiority of lime-water over all other preservatives which we have tested. Closely following lime-water is the so-called "Water-glass," or Sodium silicate. Both, according to our results, have proved effective preservatives, but it may be remarked that it is useless to expect that either can entirely arrest that "stale" flavour commonly found in all but strictly fresh laid eggs.

THE PREPARATION OF LIME-WATER.

The solubility of lime at ordinary temperatures is one part in 700 parts of water. Such a solution would be termed saturated lime-water. Translated into pound and gallons, this means one pound of lime is sufficient to saturate 70 gallons of water. However, owing to impurities in commercial lime, it is well to use more than is called for in this statement. It may not, however, be necessary, if good, freshly-burnt quicklime can be obtained, to employ as much as was at first recommended, namely, two to three pounds to five gallons of water. With such lime as is here referred to one could rest assured that one pound to five gallons (50 pounds) would be ample, and that the resulting lime-water would be thoroughly saturated. The method of preparation is simply to slake the lime with a small quantity of water, and then stir the milk of lime so formed into five gallons of water. After the mixture has been kept well stirred for a few hours it is allowed to settle. The supernatant liquid, which is now "saturated" lime-water, is drawn off, and poured over the eggs, previously placed in a crock or water-tight barrel.

As exposure to the air tends to precipitate the lime (as carbonate), and thus to weaken the solution, the vessel containing the eggs should be kept covered. The air may be excluded by a covering of sweet oil, or by sacking upon which a paste of lime is spread. If, after a time, there is any noticeable precipitation of the lime, the lime-water should be drawn or siphoned off and replaced with a further quantity newly prepared.

GENERAL PRECAUTIONS NECESSARY TO TAKE.

It is essential that attention be paid to the following points:—

1. That perfectly fresh eggs only be used.
2. That the egg should throughout the whole period of preservations be completely immersed.

Although not necessary to the preservation of the eggs in a sound condition a temperature of 40 degrees Fahr. to 45 degrees Fahr. will no doubt materially assist towards retaining good flavour, or rather in arresting that "stale" flavour so often characteristic of packed eggs.

Respecting the addition of salt, it must be stated that our experiments—conducted now throughout fifteen seasons—do not show any benefit to be derived therefrom; indeed, salt frequently imparts a limey flavour to the egg, probably by inducing an interchange of the fluids within and without the egg. Our advice is, do not add any salt to the lime-water.

WATER-GLASS.

Water-glass (sodium silicate) has been extensively experimented with, using solutions varying from two per cent. to ten per cent. On the whole, solutions two per cent. to five per cent. (two pounds to five pounds sodium silicate in ten gallons of water), have given better results than stronger solutions. Although in the main the results have been very fairly satisfactory, we are of the opinion that lime-water is superior as a preservative. Further, lime-water is cheaper and pleasanter to use than water-glass solution.

THE GLYCERINE PROCESS FOR THE TREATMENT OF EGGS.

This is apparently a misnomer, as glycerine, so far as the writer can learn, is not used in the process, which consists of momentarily (say about five seconds, dipping the eggs (which have been "pickled" in lime-water) in dilute muriatic acid, between one per cent. and two percent. This acid dissolves any incrustation on the shell, and gives the eggs a fresh appearance, i.e., as if they had been treated with glycerine. Immediately on withdrawing the eggs from the acid they are well washed with water, as by a hose, to prevent further action of the acid, and dried. This immersion in acid lessens the tendency of shell cracking when the pickled egg is boiled. Eggs should not be subjected to this treatment till about to be used, since the keeping quality of the eggs is materially affected by the process.

The addition of glycerine to various egg preservative fluids has been tried at the Experimental Farm, but in no case did it prove satisfactory. The general effect was to induce the growth of mould.

HARPER-ADAMS' AGRICULTURAL COLLEGE, NEWPORT, SALOP.

POULTRY LAYING TRIALS.

REPORT FOR THE FOURTH PERIOD.

The Fourth Period of the above Trials ended on the 20th February, and, notwithstanding the inclement weather. shows a further improvement in egg production, the average per pen of six birds for the 28 days being 95.8 eggs.

The general health of the whole flock has been particularly good.

Below is given a summary of the leading pens in each section:—

Pen No.	Name and Address of Owner.	No. of Eggs.	Position.
	Section 1—White Leghorns.		
50.	H. Smith, Nr. Sheffield	431	1
9.	J. L. Brown, Nr. Bristol	401	2
59.	Major W. Hayland Wilson, Hants	406	3
	Section 2—White Wyandottes.		
111.	Mrs. Alec Wilson, Garth, Breconshire ...	427	1
94.	J. and W. Purdie, Lanark	426	2
74.	F. H. Collins, Bowdley, Worcs.	417	3
	Section 3—Rhode Island Reds.		
142.	F. and A. H. Sanders, nr. Rugby	401	1
139.	G. W. Reeves, Whitchurch, Salop	364	2
133.	R. Midwood, Nr. Rugby	360	3
	Section 4—Sussex.		
163.	Col. A. Dugdale, C.M.G., D.S.O., Glos. ...	470	1
169.	Mrs. Alistair Robertson, Sussex	430	2
165.	W. M. Golden, Loire, Rugby	376	3
	Section 5—Rocks.		
184.	Capt. A. A. Plimpton, East Yorks	424	1
150.	F. R. Welch, Bewdley, Worcs.	401	2
187.	L. A. W. Wright, Loxley, Warwick ...	366	3
	Section 6—Barnevelders.		
195.	W. R. Partridge, Cirencester	285	1
189.	Capt. E. D. Brodie, The Haven, Horsham	253	2
199.	The Velderbresse Poultry Farm, Yorks ...	235	3
	Section 7—Black Leghorns.		
216.	Frank Snowden, Keighley, Yorks	389	1
211.	G. B. Metcalfe, Lechlade, Glos.	328	2
203.	The Birmingham Industrial Co-Op. Soc.	322	3
	Section 8—La Bresse.		
223.	H. Durrant. Hurstpierpoint, Sussex ...	345	1
225.	Mrs. Hines, Twyford, Winchester	346	2
224.	R. Charles Hall, Coulsdon, Surrey ...	296	3
	Section 9—Anconas.		
237.	W. Hamnett, Blackpool	299	1
236.	F. E. Derham, Milton, Derbyshire	275	2
242.	Stanley Street-Porter, Isle of Ely, Cambs.	239	3
	Section 10—Columbia Wyandottes.		
248.	S. J. Shepherd, Nr. Bridgnorth, Salop ...	373	1
250.	L. H. Wace, Solway Ash, Bridport	307	2
249.	L. H. Wace, Solway Ash, Bridport	303	3
	Section 11—Any Other Variety.		
252.	H. D. Howe, Stoney Stanton, Nr. Leicester	368	1
255.	The Ryhall Mill Poultry Farm, Lincs ...	314	2
253.	Longworth Bros., Rawtenstall	312	3
	Exhibition Section.		
264.	A. Howard. Maidenhead	440	1
263.	W. Hamnett, Marton, Blackpool	413	2
267.	Ouse Manor Farms, Sharnbrook, Beds. ...	386	3

SINGLE PEN TEST.

	Section 1—White Leghorns.		
3.	Miss H. Baylis, Stratford-on-Avon	85	1
22.	Stanley Street-Porter, Isle of Ely, Cambs.	87	2
2.	Tom Barron, Catforth, Preston	80	3
	Section 2—White Wyandottes.		
38.	C. W. Shepard, Malpas, Ches.	94	1
39.	Frank Snowden, Keighley, Yorks	85	2
42.	B. Threlfall, Churchtown, Southport ...	81	3
	Section 3—Any Other Light Breed.		
57.	C. W. Shepard, Malpas, Cheshire	77	1
55.	B. Robinson., Hundleby, Spilsby	70	2
53.	G. B. Metcalfe, Lechdale, Glos.	68	3
	Section 4—Any Other Heavy Breed.		
74.	B. Robinson, Hundleby, Spilsby	93	1
71.	Misses D. and M. Keech. Nr. Mkt. Harboro'	85	2
68.	W. M. Golden, Leire, Rugby	78	3

FUMIGATION OF INCUBATORS.

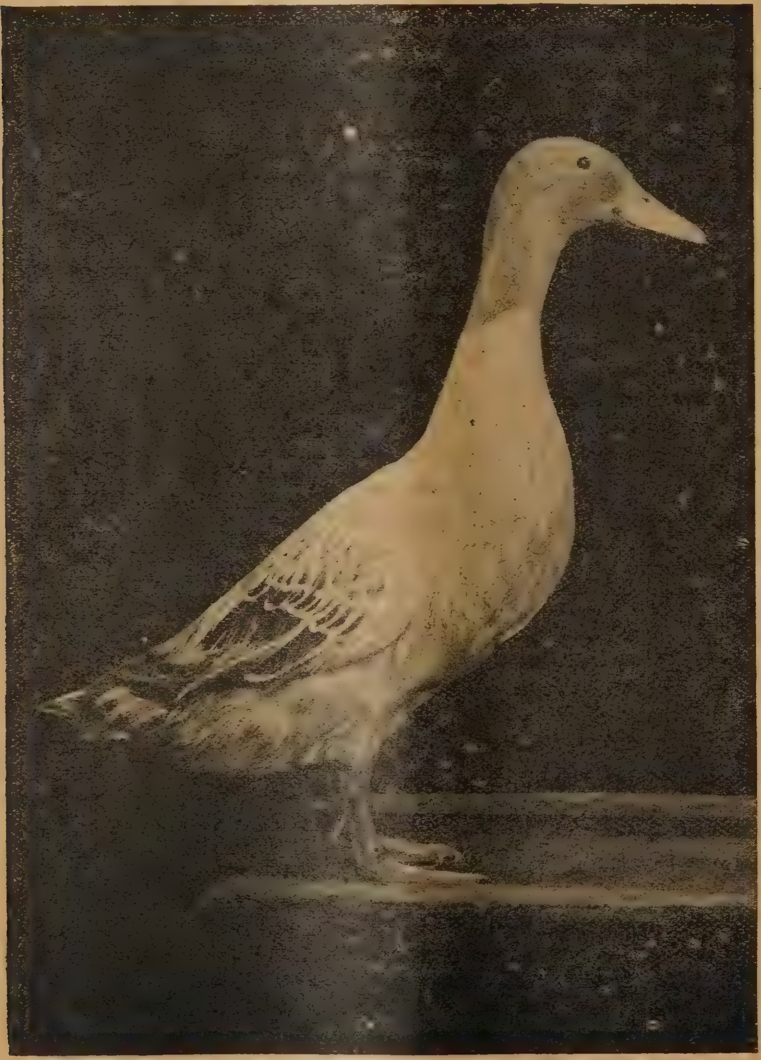
Fumigation of incubators with formaldehyde between hatches is advised, especially if an outbreak of Bacillary White Diarrhoea is suspected. This method of disinfection is trustworthy when the air temperature is 65 degrees Fahrenheit or over, and the atmosphere is humid. The incubator should accordingly be placed in a warm room; it should be well moistened inside, and a little water left in the bottom. Every exit from the chamber should be pasted over with paper, and. before finally closing, a metal vessel should be inserted containing permanganate of potash crystals over which double the weight of commercial formalin is poured. The incubator should then be finally sealed up and not opened for three or four hours. Two ounces of formalin and one of potassium permanganate are sufficient for every five cubic feet. The same procedure may be adopted with brooders, which are, however, more troublesome to make airtight. Another method is to thoroughly swab or spray out incubators and brooders with methylated spirit.

From Leaflet issued by National Poultry Council.

Notes on Utility Ducks.

By A. HAROLD PAINE.

Some months ago I made a brief mention in one of my articles of the Abacot Ranger Duck, a breed which may, by continued selective matings, outrival as a layer every other known variety. I then stated that I hoped at a later date to give a photograph of this rather unique bird, and I am now able to show an illustration of a typical specimen of the breed. That the Abacot Ranger is of rather striking appearance is evident from the photograph reproduced, which, however, does but faint justice, as it cannot be given in natural colouring. With the body and breast of pure white, the head and upper portion of the neck a shade of soft grey, and the wing bars a rich peacock blue, I do not think I have yet seen any other duck which is more beautiful or attractive. The Abacot Ranger approximates in general shape and carriage between that of the Indian Runner and the Khaki-Campbell. The genesis of the breed is rather interesting. Some seven years ago the originator, Mr. Oscar Gray, found that from pure Khaki-Campbells a number of white "sports" were being thrown, and these he inter-mated. The progeny were found to be of very high prolificacy, and were mated to a White Indian Runner Drake from a high fecund dam. At the same time he mated other progeny of the white "sports" to a drake of the same. The resultant progeny were light drakes of Khaki carriage and type, with a dark hood and white ducks with blue flight bars and grey hoods. Successive matings of the latter were then made, and a large percentage of birds similar to their dams in type and colour were produced. Further selective matings were continued season after season, and although one cannot say that the type is yet definitely fixed, for several seasons past over 80 per cent. of the hatches have come true to type.



The value of the Abacot Ranger as a utility bird has been proved by its success in the 1922-23 Bentley National Laying Test and the Wye Agricultural College Test. At Bentley the five ducks entered laid no less than 1,173 eggs, an average of 244.6 per bird, and only six of the eggs were under-size. For this record production the pen was awarded the Silver Cup in the small flock section. At the Wye Test the pen entered led every breed from the third month to the close in the four-bird section, finishing first with a total of 935 eggs, of which only seven were under-size. Every bird laid pure white eggs

I have suggested that this breed may surpass every other as a utility bird, but that only the future can prove. It is certainly rather remarkable that the only two pens that have ever competed in laying tests should have laid so consistently and with averages of 233 and 244 eggs per bird respectively. The tests in which these birds competed were run under very different conditions, and on grounds widely separated. I am at present trapping a fair number of birds, and am getting excellent results from them—equal to, if not even greater than my White, Fawn, and Fawn and White Indian Runners' Khaki-Campbells, Coaley Fawns, and Buff Orpingtons. Proved utility and beauty, in themselves a most happy combination, are not the only valuable factors of this breed. The Abacot Ranger is equally excellent as a table bird, the flesh being of the most delicate flavour, and at about ten weeks old the drake averages 4½lbs. to 5lbs. in weight. As indicated by its name, the Abacot Ranger is a splendid forager, and is at the same time very docile. The hardiness of the breed is beyond question. For years a number of birds have been kept under the most severe conditions, with little or no shelter provided, yet the general health of the pens and flocks has been excellent throughout.

CORRESPONDENCE.—(Continued).

The following refers to a letter, entitled "Disinterested Correspondence," which will be found on pages 208-209 of this issue:—

> We hesitated considerably before publishing this letter. In fact, in the first case, refused to do so, but as our correspondent stated that he considered we should be "failing in our honourable duty," we have done so.
>
> We strongly repudiate the insinuation contained in this letter, and it is only fair to our readers to state that in a covering letter the writer stated that he himself had been culpable, and again it is only fair to state that on more than one occasion we have refused to publish letters from him because, in our opinion, they did not come within the category of "Disinterested Correspondence."—(Editor).

DUCK RECORDS.

To the Editor of "Eggs."

Dear Sir,—Perhaps it may interest those of your readers who are "duckers" to hear of the performance of eleven of my Fawn and White Runners—grand-daughters of the world-famous "Lady Knight" and daughters of my drake, her son the "Duke of Wellington."

These eleven ducks have laid 200 eggs in the 21 days from February 13th to March 4th, during all this severe weather. They have *no* shelter day and night, but are in the open space in the snow and lay their eggs in it. What a saving of expense—labour, housing, litter and cleaning—such hardy ducks are!

A pen of grand-daughters of the "Duke of Wellington" lead all Sections of Ducks in the National Test for the four winter months, and have won the cup presented by the Great Eastern Railway Company for this performance, while the Wye College Test Pens of his daughter's grand-daughters are second in both Sections of Runners, large and small flocks. It will be seen, therefore, that under any conditions these ducks hold their own.

Yours very truly,
R. H. BERNEY.

FIRST-CROSS LAYING TEST.

To the Editor of "Eggs."

Dear Sir,—I note your criticism in this week's "Eggs" re the Cross-bred Laying Test, and I have much pleasure in seconding it.

I have bred cross-breds for two seasons, and my experience does not tally with a host of others that the cross-bred possesses more vitality than the pure, and is so easy to rear that they rear themselves sort of thing.

If conditions are not favourable to the pure breed, the cross-bred *will* not escape.

If first-crosses were so easy to rear I might adopt them solely, as the rearing of chicks is the most difficult side of egg-farming, to my mind.

Last year I had catarrhal trouble amongst about 500 growing chicks, and the cross-breds felt it most. Also I have had mongrels contract roup whilst undergoing fattening, and the rest of the mongrels in the vicinity succumb to it just as easily as any other breeds.

I had a bad outbreak of roup some few years ago, and my first resolve was to go in for a cross, thinking, by so doing, to lessen the chances of such a danger, but it does not here.

The roup germ evidently is present in the cross-bred as the pure, and unfavourable conditions to either will develop it.

Yours truly,
EX "MALLO."

"WHICH BREED FOR THE SMALL MAN?"

To the Editor of "Eggs."

Dear Sir,—In last week's issue "Ex-Airman" mentions the superiority of the R.I.R. over the White Leghorn in exposed places and clay soil.

My place, like "Ex-Airman's," is on the north side of a hill with an uninterrupted view to the north for twenty to thirty miles—visitors say "What a magnificent view!" In addition the soil and sub-soil is Sussex mud, yet the Leghorn does well, as shown under:—

> This winter's average (90 days):—White Leghorns, 49.7; R.I. Reds, 45.9.

The R.I. Reds are now giving 66 per cent. against 57 per cent. W. Leghorns, but the Leghorn has the best of its laying year ahead.

I originally intended keeping only R.I. Reds, and am not breeding W. Leghorns this year. Though I have a great respect for the R.I. Red, I cannot help but admire the Leghorn, even though they saddle one with expensive cockerel chicks.

The Rhode, without doubt, has a great future if broodiness can be eliminated, though, when the W. Leghorn ceases to be a paying breed, the egg-farmer will have to go out of business is my opinion.

I am a "one-man" poultry-farmer and fatten my surplus cockerels, and perhaps it will pay me and the like to keep heavies in preference to lights, but of that I am not quite certain as yet, as broodiness is not an asset to a "one-man" show. Also I cannot see the loss, which some people infer on light cockerels, if they are disposed of at six weeks old. At that age I have made 2s. of them, after about ten days' special feeding. Compared with the heavy breed there is a great difference I admit, but one has to keep the heavies about two months longer when one could do with the accommodation and time that these cockerels demand. I had no difficulty in getting the White Leghorns to scale 3½ lbs. at about four months, when plucked three seasons ago, but my search for well-bred cockerels to mate with the same dams the following year (of good size) was not successful, and the few cockerels I kept back would not scale more than 2½ lbs. at that age, which certainly proves, in this case, that size comes from the sire.

The White Leghorn is all right if breeders would consider size more, admitting at the same time that exceptional layers are not up to standard size, but why breed from them? You yourself, sir, admit that a pullet with a record of 240 will give as good layers as the 300-egger.

I have a Rhode in her second season, just gone into moult for the first time after a twelve months' and a second winter's lay, but I am not breeding from her. She is bantam size for the breed, and as I have no desire to breed such I have cast her out.

In conclusion, I should like to say how much indebted I am to "Eggs." It has been of far more value to me than the time served as a pupil some few years ago.

I keep my birds in flocks of 50 to 60, fed on your formula dry ,and the same formula wet minus bran. I also find 5 per cent. fish meal is as much as the birds need.

Yours faithfully,

EX "MALLO."

MOISTURE IN INCUBATORS.

To the Editor of "Eggs."

Dear Sir,—I have just received "Eggs" for March 5th, and notice a letter from Mr. V. O Gray, concerning the C.A.S.H. Incubator.

As there is only one C.A.S.H. Incubator, that is manufactured by me, of course he alludes to this particular machine. My object in writing these few lines is that I have continually pointed out to purchasers of incubators that it is of the most vital importance to follow the air spaces during incubation. This is the best way to ascertain whether there is too much moisture or not, as it is impossible for chicks to hatch unless there is sufficient air space. Also I have pointed out to my numerous clients the advisability of having plenty of fresh air with the C.A.S.H. Hot-Water Incubator, so much so as if they were running a Hot-Air machine.

By the same post I received a letter from Mr. G. A. Holmes, Station Road, Norton, Doncaster, in writing about this particular machine, in which he says: "I had several hatches last season of 95 to 100 per cent."

He is a well-known breeder of Black Leghorns.

I do not wish to make an advertisement of this, but I thought it well to answer Mr. Gray's letter personally.

Yours faithfully,

C. A. SYDENHAM HANNAFORD.

STABILITY OF EGG PRICES.

To the Editor of "Eggs."

Dear Sir,—I know some of the difficulties, but "union is strength" would do a lot to get a fixed price for English eggs throughout the year. Your organisation is strong enough for all producers to fix a price for eggs each month. The retailers would welcome it—in fact, they ask for it, though it might not suit the dealers.

In outlying districts one is often ignorant of any big change in price until it is too late. As an instance—a small-holder at the end of last summer, when the market was rising, sold his eggs at 1s. 7d. per dozen to a shop two yards from another shop that returned me at the rate of 2s. 3d. per dozen. Organisation will stop that sort of thing.

It would be interesting to have the opinions of some of the "big wigs" as to the practical side of fixed prices, as in milk prices—a commodity which, to a certain extent, is imported, i.e., dried form. There is no foreign eggs to compete against a genuine "new laid," which thousands of town-people have never tasted!

Yours truly,

DOWLING POWELL.

ANSWERS TO QUERIES.—(Continued.)

H. B. M. (Morecambe). As the temperature of the machine varies, dropping as low as 98, and rising to 106, I can only conclude that it is the capsule which is at fault, or that you have not got it properly regulated. That, of course, would account for the wretched weakly chicks and the delayed hatching. It may be, too, that the machine is not properly packed. Cannot you get someone in the neighbourhood to overhaul it for you? It is evident that the machine itself is at fault, and I am unable to advise you much without seeing it. I should try and get some practical man in your district to come in and tell you what is wrong.

L. A. D. (Weston). The sample of clover meal contains a good deal of the flower, and very little of the leaf, in which the real value of the clover lies. It is really absurd to pay 21s. cwt. for clover or alfalfa as the price is out of all proportion to the nutrient value. You cannot afford to pay it; there is far less nutriment in it than in good broad bran. I have examined the eggs you sent. In eight of them the embryo has died about the 12th day, two were clear and two addled. The incubator was not at fault. I am certainly of opinion that the loss is entirely due to your mating the sire to his pullets. Why ever you took such a risk I cannot say, as on your own showing the pullets were a moderate lot. This is in-breeding and not line-breeding, and there is nothing to recommend it.

F. A. B. (Watford). The sample of fish meal you send is quite satisfactory, and the analysis excellent.

We regret that many Answers to Queries are unavoidably held over.

POST-MORTEMS.—(Continued).

A. B. R. Apoplexy was the cause in this case.

A. M. J. Pneumonia. It is an auto-intoxication that causes them to rock and to curl up their toes, etc.

J. D. B. Of the first dozen eggs opened nine were infertile. Eggs should not be sent to me. I do not profess to know any more about them than others who have incubated chicken and sat hens.

G. S. A. Pneumonia was the trouble in this case. See other replies on this subject.

S. E. T. I cannot endorse your diagnosis of B.W.D. in this case. The chick was chilled, and the kidneys very dark with inflammation. If you will do me the honour of reading my article of February 20th issue of "Eggs," you will see that this bird had passed the danger period.

J. E. H. R. I note what you say as to how this fowl might have injured her wing, but it was external tuberculosis. There was a pint of dropsical fluid inside, and a tumour weighing four ounces. As tuberculosis is an infectious disease, you will no doubt have a good clean up and disinfect. Quick lime thrown upon the ground, and allowed to slack in the weather, is a good dressing for the soil where such have been dropping myriads of germs.

MARKING OF IMPORTED EGGS.

MERCHANDISE MARKS BILL PASSES SECOND READING.

Our readers will have learnt, with the utmost satisfaction, that the Merchandise Marks Bill, which includes a clause making the marking of imported eggs with the name of the country of their origin, or the word "Imported," compulsory, passed its second reading in the House of Commons on Friday last. A motion by Mr. Hogge, that it should be referred to a Committee of the whole House being happily defeated by 176 votes to 150.

We can safely say that quite 80 per cent. of those engaged in poultry-keeping were in favour of the Bill, and believe it will prove of material benefit to them when it comes into operation. Perhaps they will not all have realised that, but for the existence of the National Poultry Council, it is extremely improbable that the clause relating to the marking of imported eggs would have been included in the Bill, and the chance of this measure of protection to the consumer and producer being passed into law would not have occurred for very many years. Surely they will show their appreciation of the work of the Council now, and give it the moral and financial support that it so much deserves and so badly needs.

Only those who have been behind the scenes can have the slightest idea as to what an immense amount of work is involved in obtaining the necessary support to enable this measure to be carried. The long journeys that have to be made, the number of interviews in order to secure the necessary influence, and the amount of time that is occupied.

Special tribute must be paid to the untiring and unremitting labour which Mr. Stanley Street-Porter, the President of the National Poultry Council, has given to secure the desired result. He has stuck to his task most courageously in face of many difficulties and disappointments, and if success is due to the work of anyone individual, it is to him that the honour must be awarded. He was most ably seconded by Mr. Tom Barron and Mr. A. T. Walker.

Consumers and producers have won a big victory over the middleman, for let us not forget it was a middleman's opposition from the first. We have now to make the best us of our victory, and do all we can to raise the standard of the English egg. If we adhere to our present haphazard ways of marketing our produce, and do not take some steps to organise, we may find that our victory will not prove the blessing that we hope and expect it to be.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Chantrey, L. H., Hawks Hill, Rudgwick, Sussex.
Croad, Miss Zoe, "Wongalee," Denmead, Cosham, Hants.
Pearkes, C. A., c.o. American Express Co., 11, Rue Scribe, Paris, France.
Butterell, R. D., White Orchard, Churchill, Somerset.
Evans, H. O., 2, The Pines, Sheerness East, Kent.
Allday, Frank, Poultry Farm, Cotehill, Carlisle.
White, C., Grasmere, Christie Road, Biggin Hill, Kent.
Blake, Mrs. Fewster, The Upper House, Spring Hill, Nailsworth, Glos.
Briggs, H. B., Pinewood P.F., St. Leonards, near Ringwood, Hants.
Ward, Geo. H., 55, Pickmere Road, Sheffield.
Burdett, F. E., Strathmore P. Farm, Walberton, Arundel, Sussex.
Frost, H. J., East View, Irchester, Wellingborough.
Wells, S. R., Hoys Farm, Saffron Walden, Essex.
Brown, Reg. S., Balls Pond Farm, King's Langley, Herts.
MacDermott, E. N., 4, De Burgh Park, Banstead, Surrey.
Hales, Fred Wm., Swan Lane Farm, Goudhurst, Kent.
Sanderson, W., Queen Mary's Farm, Slaithwaite Road, Meltham.
Hughff, H. L., High Park P.F., Kendal, Westmorland.
Bourne, L. T., Walnut Tree, Hammill, Eastry, Kent.
Williams, E., The Queen's, Llangunnor, Carmarthen.
Caudy, Miss Ellen, Trafalgal House, Watton-on-Shore, Herts.
Lamb, John, Colliery Inn, Oakenshaw, Willington, Co. Durham.
Fowles, H. W., Hucclecote P.F., Zoon's Court, Hucclecote, Glos.
Brodrick, Geo., Poplars P. Farm, Higher Metcombe, Ottery St. Mary, Devon.
Powell, Dowding, Hawkhurst P.F., Cradley, near Malvern.
Whetton, A., 77, Wharf Road, Pinxton, near Notts.
Hall, H., Lee Side, Diggle, Dobcross, Yorks.
Robertson, Miss F., Llanwern, Newport, Mon.
Hirst, Alfred, De Grey House, Garforth, near Leeds.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, MARCH 7th, 1924.

GRAIN AND FEEDING STUFFS.—Although supplies of English wheat continue limited, trade is far from brisk and prices are distinctly easier, the average, 10s. 11d. per cwt, showing a fall of 3d. from that ruling a fortnight earlier. The trade for malting barley is now practically over, and, with the demand for seed purposes falling off, late rates are not easy to obtain, although best seed samples still command high prices. Home-grown feeding samples meet a fairly firm trade, but imported descriptions have an easier tendency. Oats are very quiet and the market has a weaker tone, and maize also appears to have now reached its maximum price, quotations for new crop in forward positions being lower.

Home-milled offals meet a fair trade, although middlings are cheaper at Hull and London. Linseed cakes are in quiet request, and quotations are lower. and cotton cakes, although in demand, also have an easier tendency, except in London, where prices are very firm.

MILLERS' OFFALS. Bran (British): Hull, £7 17s.; Liverpool, £8 10s.; London, £8. Broad Bran: Bristol, £9 15s.; Hull, £9 7s.; London, £8 15s. Fine Middlings (Imported): London, £10 2s. Coarse Middlings (British): Bristol, £9 15s.; Hull. £9; Liverpool, £9 5s.. London, £8 17s. Pollards (Imported): Bristol, £8 5s.; Hull, £7 10s. Rice Bran: Bristol, £8 2s.; Liverpool, £8. MEAL.—Barley Meal: Bristol, £11 7s.; Hull, £11; London. £11 7s. Maize Meal: Bristol, £12; Hull, £11 13s.; Liverpool, £11 12s.; London, £12. Maize Germ Meal: Bristol, £11 5s.; Hull, £10 15s.; London, £10. Maize Gluten Feed: Bristol, £11; London, £9 10s.

EGGS AND DEAD POULTRY.

Both home-produced and imported eggs are in good supply and experience a quiet trade at lower figures, the former averaging 18s. per 120 for 1st quality, a reduction of 3s. on the week; this quotation is, however, 3s. higher than in the corresponding week of last year. Dead poultry continues to meet a firm trade, and chickens are again dearer in some cases.

Week-end Prices.—Eggs (per 120): British, 18s., 17s.; Irish, 17s. 6d., 16s. 6d.. Danish, 18s. 9d., 17s.; Dutch, 18s. 6d.. 16s.; Styrian, 14s. 6d., 14s.; Egyptian, 11s. 6d., 11s. 3d.; Belgian, 16s. 6d., 16s.

Dead Poultry (per lb.): Fowls—Surrey, 1s. 11d., 1s. 9d.; Irish, 1s. 7d., 1s. 5d.; Others, 1s. 9d., 1s. 6d. Ducks, 1s. 8d., 1s. 5d. Geese. 1s. 2d.. 11d. Turkeys, 1s. 9d., 1s. 5d

EGGS.

Per Doz.—Ashford: First, 1s. 10d.; Second, 1s. 7½d. Birmingham: First, 2s. 0d.; Second, 1s. 9d. Carlisle: First, 2s. 3d. Chelmsford: First, 1s. 11½d.; Second, 1s. 9d. Denbigh: First, 1s. 9d.; Second, 1s. 8d. Derby: First, 2s. 2d. Dorchester: First, 1s. 6d. Exeter: First, 2s. 0d.; Second, 1s. 10d. Hereford: First, 1s. 8d. Hull: First, 1s. 10d. Ipswich: First, 2s. 0d. King's Lynn: First, 1s. 10d.; Second, 1s. 8d. Lincoln: First, 2s. 3d. Llandilo: First, 1s. 9d.; Second, 1s. 6d. Newport (Mon.): First, 1s. 11d. Norwich: First, 1s. 11d.; Second, 1s. 9d. Oswestry: First, 1s. 11d.; Second, 1s. 9d. Penzance: First, 1s. 4d.; Second, 1s. 3d. Salisbury: First, 1s. 7½d.; Second, 1s. 6½d. Shrewsbury: First, 2s. 0d.; Second, 1s. 10d. Skipton: First, 2s. 3d. Truro: First, 1s. 5d. York: First, 2s. 2d.; Second. 2s. 0d.

FOWLS.

Per lb.—Birmingham: First, 1s. 5d.; Second, 10d. Derby: First, *5s. 3d.; Second. *3s. 0d. Exeter: First, 1s. 7d. Hereford: First, 1s. 6d.; Second, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Lincoln: First, *5s. 0d.; Second, *3s. 0d. Llandilo: First, 1s. 9d.; Second, 1s. 3d. Newport (Mon.): First, 1s. 7d.; Second, 1s. 3d. Shrewsbury: First, 1s. 4d.; Second, 1s. 2d. Truro: First, 1s. 3d. York: First. *5s. 3d.; Second, *4s. 0d.

* Per Head.

DUCKS.

Per lb.—Birmingham: First, 1s. 0d.; Second, 8d. Exeter: First, 1s. 6d. Hereford: First, 1s. 4d. Llandilo: First, 1s. 9d.; Second, 1s. 6d.

What our Readers and Advertisers think of "Eggs."

" May I also thank you for your great help, through your paper 'Eggs,' to me and my poultry. I have followed your instructions, and last year I brought up 504 chicks out of 517 hatched and all with hens. I did all the work with hens and chicks without any help until the chicks were a fortnight old. My housework to look to also. The birds did not give me a bit of trouble, although I started hatching 25th February and ended at the end of March."

Yours faithfully,

(MRS.) T. A. YOUNG.

30, Pitt Street, Mexboro', Nr. Rotherham.

" Why, oh, why, is the S.P.B.A. publication, 'Eggs,' not more widely advertised?

When I consider the type of information I have gleaned this last six weeks, after nearly five years of the other stuff, I feel that I ought to be able to claim damages against somebody for **lack of knowledge and time wasted.** There must be some others in the same boat as myself, too."

FRANCIS F. F. WALTON.

De Grey House, Garforth, Leeds.

" I am glad to say my trial advertisement in " Eggs " was highly satisfactory, as I sold the whole of the twenty pullets immediately. I am now enclosing an advertisement of Cockerels, which I hope will be as successful."

ALFRED HIRST.

"SOLD FIVE TIMES OVER."

Cot Poultry Farm, Hassocks Road,
Hurstpierpoint, Sussex.

" I shall be glad if you will withdraw my advertisement from the next edition of " EGGS " as I have **sold the articles five times over.**"

R. S. LEESON.

Kenley Hotel, Kenley, Surrey.

" I have had very good results indeed from "Eggs."

R. K. WEST.

Brookside, Dane Hill, Sussex.

" Results are very satisfactory."

(Miss) N. B. MADDISON.

Ouse Manor Poultry Farm, Sharnbrook, Beds.

" I get equal number of enquiries from "Eggs" as any of the other papers."

T. S. PARKIN.

Batchelor Hall, Isfield, Sussex.

"Thanks for your reminder of the 6th, re my advertisement for stoves: I do not require to repeat this, as I have already found a buyer, and this after the second insertion.

Thanking you for your services."

E. KENNETH ROBINS.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, March 19th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of " Eggs " to their poultry-keeping friends.

Subscription to " EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, " Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of " Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

A FIRST CROSS LAYING TEST.

We had hoped, and expected, that our good friend, Mr. Toovey, would have something to say anent the criticism of the proposed laying test for first crosses, which appeared in our issue of February 27th, and he has not disappointed us. Although it is our misfortune to differ with him on most points connected with poultry-keeping, his letters are always welcome, because they are temperate, clear, and to the point. From his letter which follows our readers will see how materially we differ from one another on the question of the first cross laying test, and how we approach the subject from different standpoints.

MR. TOOVEY'S LETTER.

" Sir,—I am sure no one who knows you, would hint at, or even think for a moment, that any motives but those of the highest would influence you in arriving at any conclusion. All the same I venture to differ from you on the question of first cross poultry.

I take it the object of a laying test is to indicate whether first cross poultry or pure breds, give the best average production, for this is what really matters. The test, however, should be co-ordinated, and the crosses, I think, if not absolutely, at any rate on one side, should be bred from the pure-breds against which they are pitted, also the parents on both sides should come from selected trap-nested strains. A series of tests would also appear desirable before definite conclusions should be arrived at. I agree, too, that a laying test for first crosses will not be of much value to the breeders of pure-bred poultry, but I submit for the commercial egg farmer, and the ordinary poultry-keeper, it may give practical results of the highest value, and without the two latter there would be little justification for the existence of the former.

I have personally been experimenting with first crosses for three seasons, and as far as my own farm is concerned, the results have led me to come to the conclusion to breed no more pure-breds than are necessary to maintain the pure-breeds required for making the first crosses. I have found that the first cross excels over the pure-breeds in the following particulars:—

(1) A decided general increase in egg production.

(2) Greater vitality in adult stock, and, therefore, greater freedom from disease.

(3) The chickens are stronger, more easily reared, and as they approach maturity the number of culls to be weeded out is negligible compared with those I have found among pure-breds.

(4) The average table value of the table birds is higher.

I also have a strong impression that I shall find a greater longevity amongst the laying stock, which will reduce the cost of replacements. The result of the winter production of the second season hens certainly goes so far to substantiate this opinion. With the exception of one breed, the Houdan, I have confined myself to those breeds in which selection by the trap-nest has done so much to establish the genetics of egg production. Unless this is done in the breeding of the layers for the proposed competition, it is likely to be misleading.

In breeding first crosses it appears to me to be especially necessary to observe the following procedure. The parents must be fecund stock, not in name only, but in reality, and type must be preserved. I have found the best general purpose bird is obtained by mating White Leghorn cockerels to such heavy breeds as the White Wyandotte, Rhode Island Red, and Light Sussex. These give a tinted egg, which is a factor of importance. The Houdan White Leghorn gives a very high production, but resembles the White Leghorn in not shining as a winter producer, but is a much better table bird. The cockerels make really high-class spring chickens. A cross between the White Wyandotte and the Rhode Island Red results in a most excellent winter layer, an excellent sitter and mother, but its sitting propensities in the summer spoil its average, although it probably gives full compensation for this defect in the succeeding winter.

I have considered the question of second crosses, but, although breeding from these with pedigree cocks would obviate the necessity of keeping so many pure breeds, I do not feel inclined to attempt it. I do not see how type could be preserved, and also because I think that atavism or reversion would result. Two very high authorities have, however, given me their opinion, that this would not be so if pedigree pure-bred males were used. This practice would not, however, overcome the difficulty of preserving type. I have found that a heavy male gives, with one exception, an unsatisfactory type if mated to a light breed. The White Wyandotte White Leghorn cross is, however, not bad, but I prefer the other way about. There is something that is not easily explained about the Houdan. The breed itself is not selected for egg production, neither do I think it naturally very fecund, yet a Houdan cross is a good producer, at any rate I have found it so in more than one mating.

There are signs that the industry is faced with an increasing competition, both at home and from abroad. My apprehensions as to economic results have been lightened by the appreciation I have gained for the first cross.

If first crosses help commercial people to keep their end up, the pedigree breeder should also benefit in the long run.

Yours faithfully,
T. W. TOOVEY."

May we say, in the first place, that our opposition to the proposed test is not based on the effect it will have on the pedigree breeder, although that is a factor which deserves full consideration. It is based on the grounds that the efforts of the breeder should be directed to **breed improvement,** and that any observable weakness, whatever form it may take, should be eradicated by selective breeding. That is what was meant when we wrote of "selective breeding in the broadest sense of the term." Cross breeding does not tend to breed improvement, but to the destruction of pedigree, and all that selection has accomplished.

Selective breeding, and that alone, has led to the wonderful improvement in our stock, which is so apparent to everybody. By the selection of the individual we raise the standard of the race; only by continuous selection can we maintain it. If we encourage cross-breeding, we discourage selective breeding, because there will be no object in practising it. It appears to us that those who favour it are more concerned with the immediate than they are with the ultimate effect it is likely to have on the industry and the stock in this country.

There is nothing which is claimed for the cross-bred which could not be effected by selective breeding of the pure, whether it be stamina, quicker maturity, or any of the claims which Mr. Toovey makes for it. We are entirely in agreement with him when he says that it is the **average** production that matters, but we have records of flock averages of over 180 eggs per bird, and we do not think that the cross-bred is likely to beat that.

It may be perfectly true that without the commercial egg farmer, and the ordinary poultry-keeper, the existence of the pedigree breeder could not be justified, but it is equally true that without the pedigree breeder, commercial egg farming would not have been possible. Mr. Toovey speaks of the necessity of preserving type. We do not quite understand him, neither do we see the necessity, but what does he mean by **type** in this instance? When you cross two breeds you destroy type, for the progeny are not a happy blend of the two. Whichever is prepotent will prove dominant, and, in any case, some will favour the male, some the female parent, while some will be intermediate; therefore, we don't understand what he means by type, and why he should attach any importance to it.

No laying test, nor series of tests will conclusively prove whether first crosses or pure-breds give the best average production. In the first place six selected cross-breds can never be typical of a flock of cross-breds, and in the second so many units can hardly be said to constitute a flock on which we can make a calculation of average production. We would not even say that it is possible for this test to prove conclusively which cross is best for egg production.

Mr. Toovey says that in breeding first crosses "the parents must be of fecund stock, and yet Houdan Leghorn cross is a good producer, although the Houdan has not been bred for heavy egg production," and he states, as far as he knows, it is not a natural producer, while he will forgive our saying that he has on more than one occasion stated that he has never attempted breeding highly fecund flock, but has been content with a comparatively low flock average, on the ground that heavy production impaired stamina. Therefore, he has substantiated what we said last week, that heavy producers (cross-breds) are quite as likely to be bred from mediocre stock as from highly fecund parents.

As to the increase in egg production, would he kindly give us the flock average of his first cross pullets, and allow us to compare it with the flock average of some commercial egg farms with which we are acquainted. We ask this in all good faith, and not from motives of idle curiosity.

On the question of genetics it is argued that these being "fixed," the progeny of highly fecund parents are themselves likely to be highly fecund, but this is not by any means certain, and there is strong reason to believe there will be wide variation. Again it has been demonstrated that the introduction of a highly fecund male to a flock of mongrels has resulted in a material improvement in the average production. This may have some bearing on the question of the result of breeding a second cross, as it is the influence of the male which counts, although, of course, we would expect the variation to be greater. Mr. Toovey's two high authorities are possibly right, as to there being no fear of atavism or reversion with a second cross if a pure-bred male were used, as reversion comes with the inter-breeding of first crosses, and atavism sometimes occurs with pure breeds.

When all is said and done, it is necessary to take the "long view." We may be wrong in what we have written and prophesied as to the effect of this sudden demand for the cross-bred and the effect this test is likely to have on the future of the industry and the poultry stock in this country. We sincerely hope we are.

POST YOUR COPY EARLY

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Scientific Poultry Breeders' Association

All correspondence should be addressed to Mr. TOM NEWMAN, Hon. Sec., The Beeches, Rudgwick, Sussex.

PROGRESS.

Astonishing as the progress of the S.P.B.A. has been (another record of new members has been set up for February), it does somewhat surprise me, now that we have 11,000 subscribers to "Eggs," that not more than half of them have joined our association. Are those who hold aloof fully aware of the advantages to be derived from membership? or is it that word **Scientific** which affrights them; if so, let us assure them that our interpretation of the word is **Organised Commonsense.** I ask this question because it sometimes happens that letters arrive in which the writer says he would like to become a member, but has no scientific knowledge. That need not debar him. We make no claim to be scientists, but we have a great appreciation of the value of scientific knowledge combined with practical experience. We shall not plague him with scientific terms which he will not understand; our tale is told as simply and plainly as posisble, and we never make an assertion without giving a reason for it. As to the benefits, there is free advice by post, a free copy of the Annual "Register," which is the best year book published; free leaflets; the discount system, by which he may save his subscription several times over; and many other advantages which I cannot mention here. The subscription is only five shillings per annum, and it is a very small sum for the privilege of being a member of the most progressive poultry society in the world.

THE MINORCA AND THE FIRST LAYING TEST.

Mr. Hobson, who has just become a member, writes me a most interesting letter. He asks me if I was aware of the fact that he was the first prize winner of the world's first laying competition. This was held 26 years ago, was a four months' test, and Mr. Hobson won with Black Minorcas, the four birds laying 161 eggs in the sixteen weeks, a feat which created some excitement in those days, when people did not know that hens could be bred to lay the winter egg. Mr. Hobson still has the same strain, and he tells me that, in spite of the Arctic weather, and snow laying in the fields, and his farm being 700 feet above sea level, he is still getting most extraordinary results, and hopes that the breed will soon regain its place in the first rank of utility poultry. I hope so, too; what a fillip it would get if it succeeded in winning another laying competition! And that day may not be far distant, for there is a extraordinary revival of interest in the breed.

REMARKABLE CLAIM TO FORETELL SEX.

I see in a contemporary that a Leeds physician makes a remarkable claim to foretell sex. Of course there is nothing very remarkable in it, nor anything very novel, for old Columella said he could do so some two or three thousand years ago, and I remember commenting on this same Leeds physician's claim some 3 years ago, and goodness knows how many more have made the claim before or since. What is amazing is that he claims—or perhaps our contemporary does for him—to be the "inventor" of this "needle test." It is quite 20 years ago since I first heard of it, and it is at least eight years ago that a photograph of a gentleman from Arizona appeared in the "Daily Mail" who made the same claim. I noticed he wore a six-shooter, and there was a glint in his eye, that gave one the impression that he was prepared to substantiate his claim should anyone presume to dispute it; that six-shooter was rather ostentatiously displayed. But to return to our Leeds physician, the following is from our contemporary:—

> Dr. F. W. Cory, M.R.C.S., a Leeds physician and surgeon, asserts that he can forecast the sex of the bird before it is hatched.
>
> Not only that, but he can take a piece of meat and tell the sex of the animal from which it was cut.
>
> These amazing experiments are done by means of the "needle test," of Dr. Cory's invention. The sex of any human being or animal can be stated with certainty whether that body is alive or dead, or asleep or awake, and sex can be foretold before birth.
>
> **Essential that Mind Be a Blank.**
>
> "I thread a large needle upon a silk or cotton thread," Dr. Cory told a "Yorkshire Evening News" representatuve. "Holding the needle by the thread in front of the object I am testing, I look at the object, and—this is essential—make my mind a blank. I suppress my conscious mind and allow my sub-conscious mind to be predominant.
>
> "After a short time the needle will begin to move. If it makes a circular movement the object is a male, if the needle moves backwards and forwards the object is female.
>
> "The test is very delicate. This is especially so in the case of experimenting upon eggs. The egg has to be tested while it is yet in the nest, for if it has been handled recently it will give the reaction for the person who touched it."
>
> A remarkable aspect of this discovery is that if a person is asleep the needle will give the correct reaction for sex if held over the body, but the opposite reaction if held over the head.
>
> If the subject is dead the same reaction—that showing the sex—will be given over head and body.
>
> **Practical Use.**
>
> Obviously this application of the Needle Test would be of great use in hospitals, where there is sometimes some doubt whether a patient is asleep.
>
> There are many other practical uses for the test. In the detection of criminals it would be invaluable. Given a drop of blood Dr. Cory could state the sex of the human being from which the blood came—a valuable clue in mysterious murders.
>
> "There is something far more than a mere detection of sex in this test," said Dr. Cory, who has an exceptionally interesting theory as to the reason for the phenomena. This explanation leads him to believe that if he practised the Needle Test to a great extent something of the personality of the subject tested would pass to him.
>
> If he continually tested a mummy which had been evil, evil influences would pass to the experimenter.

Now I have a distinct recollection that the test last time was carried out in the museum, and it was explicitly stated that the heart and liver of a mummy was tested, and the heart proved to be male and the liver female. We hear sometimes of a voice from the heart, but I have never heard of one from the liver, so that we can only conclude that having only just found its voice it mumbled a bit, and perhaps was misunderstood. Then consider the evil influences of such an experiment, especially on a blank mind, fancy their creeping up that needle and silk, and your becoming associated with them. All mummies are supposed to have evil influences; at least in all the stories I have read, in which they played an important part, they certainly didn't appear to be particularly desirable acquaintances. There is one other thing my poor simple mind can't grasp, "the egg must be tested in the nest; if it has been handled recently it will give the reaction to the person who touched it." Now this is rather unkind, because it knocks the whole theory on the head. The hen which laid the egg would assuredly be the last "person" who touched it, and obviously it must re-act to her influence; that being so, what about infertile eggs? The needle and silk which I knew 20 years ago was not supposed to respond to infertile eggs, and so you knew, it was no good incubating them; and there were a great many people who had more faith than reasoning power, and ate eggs which might have hatched Dairy winners, because that needle indicated that they were infertile.

So here we are. Will the Leeds physician kindly tell us, whether the maleness of a male germ in the egg will assert itself over the femaleness of the hen which laid it? If it won't, then why doesn't his needle swing backwards and forwards over every egg, indicating that it re-acted to the hen?

In the previous report, which came from the "Yorkshire Post," it was said that there was no virtue in the apparatus used—the needle, a pencil, or even a poker would answer. A "renowned Professor of Sexology" once advertised an instrument which was said to fortell the sex; this was made of cork wrapped in aluminium, price 17s. 6d. So evidently there was some virtue in the apparatus named in his case, although I must say that though it did the same tricks as the needle and silk, his modesty would not permit him to divulge his name, and he simply sat at the receipt of customs.

Some years ago we exposed the fallacy of it; it is merely a case of auto-suggestion. Two years ago Dr. Crew stated at Harper-Adams, in answer to a question, that there was nothing in it, and then the American Colleges tested it, and, in a published statement to the Press, said it was absolutely unreliable—there was really nothing in it. Surely any logical person could see it was a fallacy, but still the belief in it lingers, and it keeps bobbing up in the Press, and the things are still advertised.

COLUMBIAN WYANDOTTE.

The Columbian Wyandotte Year Book is to hand. Unfortunately the Secretary has to report a small decrease in members, 203 as against 210. Still the club is prosperous, and looks well after the interests of the breed; there is nothing extreme about the standard, it aims at keeping the Columbian as a dual purpose breed, and if its progress in popular favour is slow, it is steady. There are numerous interesting articles relating to the breed in the Year Book, and some excellent illustrations. What the breed can do is shown by a photograph of Mr. W. Hamnett's 1st and Poultry Club Cup winner at Ainsdale, which laid 248 large eggs. In commenting on the breed in the Laying Tests, the Hon. Sec. remarks although the winning pen showed an increase of 75 eggs on the previous year, and the total increase was over ten eggs per bird more than in the previous year, there was a falling off in size of eggs. It is a timely remark, as it can be checked if members note it now.

THE BLACK LEGHORN CLUB YEAR BOOK.

The Secretary of the British Black Leghorn Club is optimistic, and well he may be, for the club is now the third strongest specialist club in the country, and, taking into consideration its short existence, it has accomplished wonders to reach such a position. I note the President draws attention to the fact that while judges are permitted to use their discretion in allowing a small amount of white in tail of a male bird, he "views with alarm the great number of birds that have been shown and winning this season." I am no fancier, but I wonder if it is possible to breed a really **black** Black Leghorn male, with good yellow legs, without his showing white in tail, or light under-colour; and, if it is possible, can it be done without double mating? If to accomplish it we are bound to resort to double mating, then are we "encouraging and improving the breeding of Black Leghorns for combined exhibition and utility purposes?" I am asking for information, and not making an assertion.

Mr. B. Birkhead, the Hon. Sec., asks me to announce that he has removed to a new address, viz.: **White Houses P.F., Barnehurst, Bexley Heath, Kent.**

Modern Poultry Feeding.

By TOM NEWMAN.

THE WELLINGHAM EXPERIMENTS.—SOYA BEAN AND FISH MEAL.

The fifth period of four weeks concluded on February 21st, and, as well be seen, Pen C. has not only maintained its lead, but slightly increased it, the total for the month being 182 eggs for the ten birds, an average of 18.2 per bird, and 787 for the twenty weeks, or an average of 78.2. This must be regarded as highly satisfactory, and should demonstrate that heavy egg production can be maintained without the use of a high percentage of expensive animal protein.

As compared with this Pen A, with the highest percentage of fish meal, laid 154 eggs for the four weeks, an average of 15.4 per bird, and 669 for the twenty weeks, an average of 66.9 per bird.

For the benefit of new readers I will give the two formulas, and add the birds are all White Leghorns, of the same age and breeding, and housed under the same conditions, the sole difference being in the mash fed, as each pen is now receiving 2ozs. of kibbled maize per bird per day.

The mash for the leading pen (C) is: 2lbs. of bran, 4lbs. middlings, 1lb. Sussex Ground oats, 1¾lbs. soya bean meal, and 4ozs. of fish meal.

For Pen A: 2lbs. of bran, 4lbs. middlings, 1lb. each ground oats, maize meal and fish meal.

The mashes are dry mashes, and always before the birds.

In view of the correspondence received in regard to this test, it is again necessary for me to say that the soya bean meal used is the extracted, and to add that I do not consider that it is superior to fish meal. We have proved nothing so far except, as mentioned above, that we can produce eggs without a high percentage of animal protein, and possibly that soya bean is a cheap and effective substitute. The fact that Pen C is leading by 118 eggs must not lead us to conclude that it will produce more eggs than fish meal. I am obliged to put this as plainly as possible, in answer to the scores of letters which have been received on this particular point.

PULLET EXPERIMENTS.

"A." (Blue Ring).

Ring. No.	Eggs. Feb.	Eggs. To Date.	Amount Consumed.
121	20	53	Mash: 36lbs. Grain: 36¼lbs. Total: 72¼lbs.
228	7	43	
235	21	56	
249	22	106	
250	18	78	
337	18	66	
384	23	78	
388	—	29	
401	20	93	
405	5	67	
Tot.	154	669	

Total Cost: 7s. 8d..7989

"B." (Red Ring).

Ring. No.	Eggs. Feb.	Eggs. To Date.	Amount Consumed.
80	15	43	Mash: 40lbs. Grain; 36¼lbs. Total: 76¼lbs.
206	2	34	
207	1	42	
210	18	51	
217	19	77	
271	21	96	
292	9	74	
303	21	96	
508	17	56	
524	21	88	
Tot.	144	657	

Total Cost: 8s.-.2276

"C." (Green Ring).

Ring. No.	Eggs. Feb.	Eggs. To Date.	Amount Consumed.
213	21	92	Mash: 50lbs. Grain: 36¼lbs. Total: 86¼lbs.
229	19	83	
256	19	75	
257	19	87	
265	21	81	
273	21	85	
410	—	74	
411	24	82	
413	20	51	
525	18	77	
Tot.	182	787	

Total Cost: 8s. 10d.-.8452

"D." (White Ring).

Ring. No.	Eggs. Feb.	Eggs. To Date.	Amount Consumed.
79	18	85	
138	19	49	Mash: 54lbs. Grain: 36¼lbs. Total: 90¼lbs.
234	13	59	
261	22	89	
333	22	84	
387	21	88	
389	21	74	
392	17	70	
394	12	27	
285	—	17	
Tot.	165	642	

Total Cost: 11s.-.2005

I have been asked by Mr. Reginald Noot to try and throw some light on the Australian Feeding Experiments, more especially in relation to the fact that the pen which were given free choice of food, and laid the highest number of eggs, consumed the greater amount of hard grain, and the smaller amount of animal protein.

The following are the particulars of the test which began on April 1st of last year, and will conclude on March 31st this year. Three pens of White Leghorn pullets, containing 36 birds each, were concerned. None were chosen from a single mating, the object being only to test birds of the quality which may be found on an ordinary farm flock. The birds were housed and treated in the same way, except for the feed given.

No. 1. Free Choice Pen.—The birds had all the foods in different hoppers always available. A wire basket is kept filled with green stuff always before them.

No. 2. Dry Mash.—Mash consisted of 221lbs. of bran, 379lbs. of pollard, 72¾lbs. meat meal, 18lbs. of rape seed meal. Green food chaffed is fed at mid-day, and grain in the litter at night.

No. 3. Wet Mash.—Mash consisted of 228lbs. of bran, 385½lbs. of pollard, 118lbs. of meat meal, and greenstuff and grain as in pen 2.

The Free Choice Pen ate: 371½lbs. of meals, in the form of bran, pollard, oaten pollard, barley pollard, meat meal, and rape seed meal, and 1,450lbs. of grain. They laid 4,309 eggs.

The Dry Mash pen ate 692½lbs. of mash, constituted as above mentioned, and 1,190½lbs. of grain. They laid 4,049 eggs.

The Wet Mash Pen ate: 732lbs. of mash, constituted as above-mentioned, and 1,098½lbs. of grain. They laid 4,232 eggs.

There is one fact that stands out, the free choice pen consumed only 44lbs. of animal protein, the lowest quantity of wheat ,and more than three times as much maize, and twice as much barley as the other two pens.

As the average production per bird in the free choice pen is only 7½ eggs per bird above that of the lowest pen, and only two per bird above that of the wet mash pen over a period of eight months, there is not much in it, especially as we have no details regarding the birds; and the different results may perhaps be accounted for in a great measure by the actual differences between pens. If the test proves anything, it is that a high percentage of animal protein is not more necessary to egg production than the carbonaceous foods and fats. I have said many times that a wide ration gives better egg production than a narrow one, and that a hen must have fat in her body to lay, also repeatedly drawn attention to the value of maize for egg production, preferring it to wheat, which is poorly provided with fats. It should be looked upon as demonstrating the value of the carbonaceous foods and fats rather than the value of hard grain, and also proves what has so often been stated in these columns, that there is nothing to be gained by feeding a high percentage of animal protein. The mash given would satiate the appetite, but it was not very nutritious.

INCUBATION: Re MOISTURE, Etc.

By B. P. LESCHALLAS.

The season's troubles are upon us, and the old questions are once more crying out for satisfactory answers.

May I take up some of your valuable space, and give results of a few experiments?

Two years ago I tried methods of introducing moisture into hot-air incubators, and nearly went mad counting drips and drops, and looking at and tabulating thermometer and hygrometer readings.

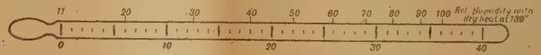
The first point established was that the hot-air passes along the tube inside and above the top canvas of hot-air machines, and then "banks up," because hot-air rises. Once inside the incubator this banked up air cools and is forced **downwards** by the ingress of more hot-air. Finally, the circulation is down through the egg tray, and **out** via felts and slats below felts.

I have since artificially filled an incubator with smoke, and watched the movement of the currents of air by this means.

Moisture, then, to have any effect on the eggs must be added from **above** them. This was done by boring holes in the sides of the machines, two on each side, midway between the top canvas frame and top of **inside** of incubator. In the case of Glevums 5¼in., and Gloucesters 7in. from top of outside framework.

In these holes ⅜in. metal tubes about 4in. long were fixed, and in these long rolled up pieces of blotting paper (supported by being made up on stiff wires) were pushed. These "wicks" projected outside for about 5in., and cans were suspended beneath them. Muslin was then wrapped round the protruding "wicks," and the ends placed in cans filled with water.

Results were measured by the "Miller Moisture Gauge,' and tremendous increase in humidity recorded. Unfortunately the Miller Gauge does not show relative humidity, but this is a rough scale, which is reasonably accurate, but allowances must again be made when readings are taken in the incubator, because, with eggs in the tray, the bulb of the Miller Gauge cannot be placed on the same level as the incubator thermometer.



Now for results.

Average of all hatches in 1922 (excluding clears only), 72 per cent. out of some 1,000 eggs incubated.

The moisture was of a very unknown quantity, and we could not introduce what we deemed to be sufficient.

1923, with improved moisture device and greater relative humidity, 82.75 per cent., some 1,200 eggs incubated.

This year our first hatches were very bad—50 per cent. to 60 per cent., and we said all sorts of things about stock, feeding, and the climate! It was not until we had cursed everything that we discovered that the blotting paper "wicks" were refusing to "blot," and little, if any, moisture was going in.

A hatch was going on at the time, chicks that were coming out were late, and it looked like being a rotten hatch. The "wicks" were torn out and water sprayed in via the tubes by means of an old Galvo-Electrine Insecticide Sprayer. (I have since measured the relative humidity, and it would appear to have been round about 70 per cent.). Chicks jumped from their shells, and a 89.9 per cent. hatch resulted.

Some of those that didn't hatch were dead before this drastic step was taken, and although they had chipped, were absolutely glued up inside the egg.

Only seven eggs were taken out at first and second test, two of which were clear.

This supports **very** strongly Miss Beckley's letter in "Eggs" of February 6th.

Now, Capt. Cadman's experiments in Egypt rather go to show that relative humidity in natural incubation is far less towards the end of the hatch, and highest during end of first week, falling as low as 15 per cent. to 20 per cent. on 19th and 20th days.

Can it be possible that the body of Mother Hen exudes a far more potent means of breaking down the shell and keeping moist the lining than H_2O?

Another item of note:

We do not "cool," and the egg drawer is not changed back to front. Eggs in front row (or rows) are in a temperature **at least** three degrees lower than those in centre or at the back of the machine.

Eggs have on repeated occasions been marked and kept in the same positions until the time of placing in pedigree trays (i.e., until the 19th day), and have been proved to hatch as well as those in any other part of the incubator.

By that I mean that 100 per cent. hatches have been obtained from eggs that have been from 1st to 19th days in no higher temperature than 100 degrees or 101 degrees. Whilst 100 per cent. hatches have also been obtained from eggs that have been at 104 degrees from 1st to 19th day.

Of course, hot-air machines must be "doctored," and made as nearly airtight as possible as regards all front openings.

Re C.A.S.H. tank incubator.

I tested one last year, and filled tray with earth taken from the garden in the month of January, presumably saturated.

Situation. Very hot-airless corner of incubator room about 18in. from floor. These hatches varying from 68 per cent. to 78 per cent., when moved to where hot-air machines were working **most** successfully, i.e., a very airy and moderately cool temperature, the C.A.S.H. machine could not be made to keep up its temperature. In fact there was so little chance of a successful hatch that the eggs were taken out of the machine.

To those who have this machine I would advise:

1. (and most important) a position at least 2ft. 6in. off the floor, in a sheltered warm corner, where 103 degrees can be easily maintained on a cold night without a very high flame.
2. Earth very damp and patted down into a good basin shape.
3. Turn eggs as quickly as possible. Usual disclaimer.

ST. DUNSTAN'S WINTER EGG-LAYING TEST.

This Test, held at St. Dunstan's Home Farm, Kings Langley, Herts, started on the 11th October last and finished on 27th February.

There were two sections, Heavy and Light Breeds, and 45 pens of 4 pullets in each.

The laying of the leading pens compares favourably with that of some of the larger Tests at present running, and speaks well for the strain and stamina of birds reared by our blinded poultry-keepers.

During the first four weeks of the Test eggs weighing $1\frac{7}{8}$ oz. or over were classed as first grade, and for the subsequent periods those weighing 2 oz. and over. Those weighing less than the respective weights fixed for first were classed as second grade unless under $1\frac{5}{8}$ oz. Eggs less than $1\frac{5}{8}$ oz. were not taken into account. Second grade eggs were accepted as of equal value to first grade, but not more than 60 were credited to the score of any pen.

A pen of Rhode Island Reds, reared and owned by Mr. J. Fowler, of Ilkley, and which won First Prize in the Heavy Breed Section, laid a total of 341 eggs in the five months, and of those 315 were first grade.

In the Light Breed Section a pen of White Leghorns, reared and owned by Mr. C. R. Bulman, of Redcar, laid a total of 345 eggs in the same period, thus beating the heavy breeds by four eggs.

The total number of eggs laid was 10,380, an average of 57.72 eggs per bird for the 20 weeks. 7,015 were first grade eggs and 3,365 second grade.

The highest individual record was 110, laid by a Rhode Island Red pullet, reared and owned by Mr. F. W. Boorman, of Ropley.

The health of the birds throughout the Test has been excellent, only two birds having died, both from ovary trouble. The results of the 10 leading pens are:—

HEAVY BREED SECTION.

Position.	Owner and Breed.	Total Eggs Laid.	Test Value.
1.	Fowler, J. (R.I.R.)	341	341
2.	Crabtree, F. (W.W)	301	301
3.	Griffen, A. (W.W.)	300	300
4.	Condon, C. T. (R.I.R.)	304	277
5.	Stamper, T. D. (W.W.)	310	258
6.	Levett, J. (W.W.)	256	256
7.	Trigg, A. E. (R.I.R.)	263	249
8.	Nelson, H. (R.I.R.)	246	246
9.	McLeod Steel, Mr. (R.I.R.) ...	239	239
10.	Hargreaves, H. (W.W.)	264	231

LIGHT BREED SECTION.

1.	Bulman, Mr. C. R. (W.L.) ...	345	345
2.	Ramsden, Mr. N. A. (W.L.) ...	314	311
3.	Pink, A. (W.L.)	264	264
4.	Coulson, A. (W.L.)	261	252
5.	McIntosh, C. (W.L.)	280	238
6.	Burgin, W. (W.L.)	289	232
7.	Tindall, J. H. (W.L.)	280	224
8.	Irvine, Mr. T. (W.L.)	218	218
9.	Owen, Capt. W. (W.L.)	197	197
10.	Webb, W. (W.L.)	236	180

J. THOMPSON BROWN,
Superintendent.

7th March, 1924.

"LEICESTER MERCURY" COUNTY LAYING TRIALS.

Officially supervised by the Leicestershire County Council—Agricultural Education (Joint) Committee, Horticultural Sub-Committee.

Fifth Monthly Report covering the period February 4th—March 2nd, 1924.

Mr. W. Rolling reports that the results continue to be satisfactory. No case of death or infectious disease has occurred, and all the birds are in first-rate condition. The first two weeks of the period gave results which almost reached the expected maximum output, but this was followed by two weeks of bitterly cold wind, rain and snow-storms, which seriously checked the egg production, especially of the light breeds. The site of the trials is an open wind-swept elevated pasture, which affords no shelter from the adverse weather, thus the trials are a test of hardiness as well as egg production.

The total number of eggs laid during the fifth period was 3893, a slight increase over the previous period, being an average of just over 16 eggs per bird. The total egg production to date is 17582, 13061 eggs being 1st grade, 4259 2nd grade, and 262 under weight.

The lead over all Sections is still maintained by Mr. Howe's pen of White Wyandottes, which pen has averaged 19.5 eggs per bird per month. The best individual record for the month was made by Mr. Hill's Rhode Island Red pullet, which laid 27 eggs in 28 days. Another pullet in the same pen made an exceptional record by laying on two occasions within four days two complete eggs in each of two days, this bird totalled 5 first grade eggs in four days. Lady Dorothy Fraser's pullet No. 4, Pen 29, has made the best score for the five months by laying 119 eggs in 140 days, whilst the best pen score for the month—140 eggs from 6 pullets—is credited to Lady Dorothy Fraser's Pen of Rhode Island Reds.

The position of the competing pens is as follows:—

Section 1.—Division A.—Light Breeds (6 birds).

Position.	Competitor's Name and Breed	Eggs Laid. Grade. A.	B.	C.
7.	Geo. Price (W.L.)	369	101	0
3.	F. Porter (W.L.)	334	183	27
11.	Geo. Turner (W.L.)	161	244	10
12.	M. Butcher (W.L.)	297	88	2
6.	W. S. Woodward (W.L.)	376	107	0
2.	Mrs. R. Crawford (W.L.)	499	38	0
4.	W. Crooks (W.L.)	375	123	3
15.	W. and T. Salt (W.L.)	148	189	30
9.	Crawford and Dowell (W.L.)	327	74	3
5.	T. F. Wildman (W.L.)	321	189	1
17.	J. D. Pittam (B.L.)	122	140	4
1.	J. and A. Moore (B.L.)	522	9	0
13.	The Misses Clarke (Anconas) ...	326	40	1
10.	Geo. Stevens (Anconas)	317	79	1
8.	H. B. Howe (Blk. Minorcas)	259	198	37
16.	H. Pratt (G. Campines)	170	133	2
14.	Berry and Rawson (Blk. Leghorns) ...	287	27	2

Section 1.—Division B.—Heavy Breeds (6 birds).

Position.	Competitor's Name and Breed	A.	B.	C.
16.	J. and A. Moore (R.I. Reds)	220	158	6
5.	A. Wright (R.I. Reds)	425	93	3
10.	H. A. Preston (R.I. Reds)	347	59	0
14.	T. Steele (R.I. Reds)	310	71	0
15.	Geo. Turner (R.I. Reds)	189	213	9
18.	W. P. Proctor (R.I. Reds)	229	79	1
3.	E. Hill (R.I. Reds)	404	162	2
11.	C. B. Payne (R.I. Reds)	273	143	55
6.	Mrs. M. V. Hughes (R.I. Reds) ...	498	9	0
8.	Crawford and Dowell (R.I. Reds) ...	418	36	2
4.	T. F. Wildman (R.I. Reds)	410	146	0
13.	Lady Dorothy Fraser (R.I. Reds) ...	392	19	2
19.	Mrs. R. Crawford (R.I. Reds) ...	244	34	0
17.	F. and A. H. Sanders (R.I. Reds) ...	270	75	1
12.	Berry and Rawson (W. Wyandottes)	324	69	7
1.	H. V. Howe (W. Wyandottes)	499	86	0
9.	E. Bland (W. Wyandottes)	398	54	17
2.	Mrs. Briers (W. Wyandottes)	446	108	0
7.	W. and T. Salt (W. Wyandottes) ...	321	185	18

Section 2.—Any Breed (2 birds).

Position.	Competitor's Name and Breed	A.	B.	C.
2.	J. A. Mills (W. Leghorns)	93	77	3
5.	Miss D. Walton (W. Leghorns) ...	132	21	4
4.	Mrs. M. V. Hughes (W. Leghorns)	101	63	2
9.	J. T. Kitchen (Blk. Leghorns) ...	76	51	3
12.	Mrs. Briers (Light Sussex)	41	55	1
1.	J. T. Kidger (W. Wyandottes) ...	148	36	1
6.	A. Wright (R.I. Reds)	100	64	0
3.	L. R. Peberdy (R.I. Reds)	83	86	1
8.	Geo. Gilliver (R.I. Reds)	124	15	[illegible]
11.	H. S. Felthouse (R.I. Reds)	108	0	0
7.	E. Bland (R.I. Reds)	148	3	0
10.	Miss M. A. Geden (R.I. Reds) ...	80	30	1

Note.—A—1st Grade Eggs.
B—2nd Grade Eggs.
C—Eggs under weight.

The next visiting days are April 3rd and 5th, 1924.

H. T. ATKINSON,
County Instructor in Poultry-Keeping.
6, St. Martin's, Leicester.
March 5th, 1924.

"LEICESTER MERCURY" COUNTY LAYING TRIALS.

(Notes on the results obtained during the four winter months from October 15th, 1923—February 3rd, 1924.)

The results obtained during the four winter months must be considered in every way satisfactory. The health of the stock has been good, the egg yield quite up to expectations, and, what is also a very pleasing point, the number of eggs of small size has been low. Some of the birds were somewhat backward when sent to the trials, and consequently did not commence egg production for some time, and others that had been laying before they arrived went into a slight moult and also ceased laying for a time. The number that moulted was, however, small, and the majority of the birds soon settled down, and, as the monthly reports have shown, have laid well. Up to the end of the 4th month two birds had not produced an egg, and it will be interesting to see if this state continues.

With the extremely variable weather experienced during the four months, and taking into consideration the exposed situation of the pens in the trials, it is a matter for congratulation that the health of the stock has remained so good, one bird only having died, and it is hoped that this freedom from disease will continue.

The figures given below should prove of interest, showing, as they do, the number of eggs produced by each breed:—

BREED AVERAGES, ETC., FOR THE FOUR WINTER MONTHS.

Breed.	No. of Birds.	Total Eggs.	Average per Bird.
Rhode Island Reds	96	5183	53.99
White Leghorns	66	4082	61.84
W. Wyandottes	32	2156	67.37
Black Leghorns	20	994	49.70
Anconas	12	568	47.33
Black Minorcas	6	399	66.50
Campines	6	230	38.33
Light Sussex	2	77	38.50
Total (all breeds)	240	13689	57.04

It will be noticed that, of the breeds well represented, the Wyandottes have produced the highest average per bird. The White Leghorns have put up an excellent winter record, but have laid rather a high percentage of 2nd grade eggs; but the Black Leghorns and the Anconas have laid a high percentage of 1st grade eggs, beating all breeds in this respect. The size of egg in the Minorcas is disappointing, as this breed has for so long been considered as one of the best for producing a large egg. The Campines, although laying a fairly large number of 2nd grade eggs, have laid very few below weight. Taking all the breeds, a percentage of only 1.82 of eggs under weight must be considered satisfactory.

H. T. ATKINSON,
County Instructor in Poultry-Keeping.

February 29th, 1924.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post **by the Editor** by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

G. M. (Hartlepool). When prepotency is referred to in these columns, it is not used in the sense in which Hogan uses it. He speak of it as "Amativeness," and arrives at it by measuring the skull. In answer to your query I do not believe it in this sense. What is usually understood by it by breeders of all kinds of stock, is the power of the individual to impress on his progeny to an unusual degree the characteristics of his race. No, there are external means of discovering this power; indeed, some males which have exhibited it, have not been particularly remarkable for racial characteristics as far as externals go. (2) I don't believe in line-breeding for egg production, neither do I believe in outcrossing, as this causes wide variation; you can breed within the strain, and adopt the group system. (3) I think it most probable that the male carried the single comb factor, and this would explain the number of single combs from this mating; if you want to eliminate this you must not breed from any of the progeny.

V. G. (Lincoln). You say the cockerel's dam laid 246 eggs in her pullet year, but that he feathered badly and made very slow growth. Were you wise in mating him? I think not; in fact, I think you have made a bad mistake, as he is almost certain to transmit these undesirable traits to a per centage of his progeny. You say the environmental conditions were bad, that would, of course, make a considerable difference, but it applied equally to all his brothers, and if they developed satisfactorily it is an individual characteristic which he is likely to transmit. (2) I know of nothing which will make a hen broody. All these advertised pills are no good; the broody instinct may be aroused by not removing the eggs from the nest for a few days. You could try that, I have known it answer on several occasions, but it will not always do so.

Failure (West Hampstead). You cannot follow general advice given about incubation, but should endeavour to deal with your own particular conditions. Because your friend had a good hatch after laying a wet flannel over the eggs, it does not by any means follow that you should be successful by doing the same thing, although you are running the same kind of incubator. The additional moisture did good in his case, as he was running the machine in a bedroom with a temperature varying from 38 to 45 degrees, while you ran yours in a damp cellar with a temperature of about 50. No, don't listen to the advice to stop half the ventilation holes; it is not applicable in your case where free ventilation will give much better results. It was due to this excess of moisture that the chicks hatched a day late. (2) The egg yield is quite good, and there is nothing wrong with your feeding, but it would be advisable to reduce the fish meal a little now as the pullets will soon find plenty of insect life in the fields.

Disappointed (Llandudno). I have examined the eggs sent, and the indications are that there has been too much evaporation, the membrane was tough and dry, and the embryo was very contracted as is always the case when there is lack of moisture. Supply moisture from the first in future, and do not remove either felt until the 19th day, then remove only one, and allow the other to remain.

P. J. J. (Anerley). Some strains of Buff Rocks contain Buff Cochin blood, and this explains the occasional appearance of feathered legs; it is a case of reversion. No, do not breed from these birds. (2) The colour of the shell can hardly be used as a guide to the feeding. What you mean is, I suppose, that you found that when your pullets began to lay, their eggs were more deeply tinted than they are now, that is generally the case, but we have no idea as to what causes some shells to be tinted and others not. There seems to be some connection with it and the body fat, for as this is withdrawn by heavy egg production, the tint of the shell is not so deep; this is noticeable in heavy-producing Croad Langshans, and I am confident will occur with the Barnevelder after it has been bred for heavy egg-production for a few generations.

M. M. P. (Bedford). It is not necessary to rest eggs at all before putting them into the incubator, even if they have come a long railway journey. A test of this was made some years ago in the States with some hundreds of eggs. They were sent a long journey, half were unpacked and put straight into the incubators, the remainder were rested 24 hours; what little difference there was, was in favour of the unrested eggs. It is perhaps correct to say that resting does not do any good, and that the fresher the eggs are when put in the incubator the better. (2) It will not be wise to reserve cockerels from the chicks that you hatch from the eggs, as you have only a pen average, and although 177 is a very good average, the cockerels you reserve may have as a dam a hen with a record considerably below that. (3) Yes, it is all right to calculate the food units in your ration, provided you are assured as to the quality of the foods; but, if these are not good, then the calculation would be most misleading.

A. E. (Torquay). It would be a very great mistake to feed the mouldy wheat to your fowls, apart from the effect it would have in making the eggs taste, the results might not be immediately apparent; but it would cause the disease known as aspergillosis. The only way to use it would be to scald the quantity you require to use each day with boiling water; this will destroy the spores of the fungus. Thoroughly scald it, allow it to stand a little while, then drain off the water, and feed in the ordinary way. (2) Your friend's chick, which swelled to such an enormous size, was suffering from emphysema. The cause is lung trouble; there is some obstruction in the air passages and some escape of air into the intra-muscular tissue. You can prick the skin and let out the air, but such chicks are never worth saving.

F. F. (Rainford). In reply to your letter asking why your incubator should still run dry in spite of the fact that you filled it, I can only say that the moisture trays are not sufficient for the purpose, and that your best plan would be to keep under the incubator peat moss litter, and keep this moist throughout the hatch. It should be about 6in. deep, and should cover the whole surface of the ground under the incubator. It is no good putting a ring of vinegar round each egg before setting to help the chicks to break the shell. You will note in "Modern Poultry Feeding," an article on the feeding of chicks on wet mash. With regard to your wet mash feed for the pullets which are not giving satisfactory results, there does not seem to be anything wrong with it, but 115 eggs from 240 pullets a day is certainly nothing to boast about. I think, however, your mash would be better if you used four parts bran, eight middlings, two ground oats, and two maize, and two fish meal. Do not scald the bran, but use it to dry off the rest of the ingredients with.

C. B. F. (Romsey). If you wish to continue the dry mash feeding, and at the same time make use of your house-scraps, the best way to do so would be only to feed the scraps on two or three days of the week. That is, of course, you will regulate by quantity. So much depends on the nature of these scraps. If they consist principally of odds and ends of meat, potato pealings, green vegetables, these should be minced and cooked up and dried off with sharps, fed to the birds without any trouble. If they contained potatoes, bread, rice puddings, etc., to any extent, it would be an entirely different matter as the birds would soon become over-fat, but in any case the best way is to cook them up as advised, and dry off with middlings, and if they contain much of the starchy foods, potatoes, etc., do not feed quite so much grain that day. I would not give the house-scraps to young chicks until they are about two months old, and you must be careful that there is not an excess of salt, as I find is often the case with house scraps. Do not put in any bacon rinds, or water in which bacon or salt meat has been cooked.

R. M. N. (Marlborough). Yes, it is quite all right to preserve eggs in water-glass in galvanised vessels. I am glad you find "Eggs" most instructive.

W. H. T. (Farnham Royal). I cannot understand why the temperature of the incubator should jump about in the manner you describe, unless there is something wrong with the capsule, especially as the temperature of the incubator room is fairly constant. I can only conclude that you have not regulated them properly, or that the capsule is at fault. They cannot be affected by the room temperature, as that does not vary enough to account for it.

"Eager" (Berne Heath). Your chicks are dying because you are feeding them wrongly. Pea meal is most indigestible, and in the quantity you are using it is very excessive. Your wisest plan would be to replace it with biscuit meal, and reduce the meat and bone meal you are using to half part. Buff Rocks would be well suited to your locality. It would be better not to hatch out later than the first week in April. The incubator you are using is a good one, and you cannot blame the machine for the poor hatches. You had much better take it into the cellar. There will be sufficient fresh air there. You need not worry on that account. The coach-house is far too subject to wide variations of temperature. As a rule the hot-water machines give the best results in the early months of the year, and the hot-air in the Spring.

H. R., A. B. (Sway). I am sorry I cannot give you any more information about the Hen-Incubator than has already been given in "Eggs." It was, if you will remember, described sometime back, in, I think, November. The inventor has patented it, and, I believe, it has been advertised.

"Links" (Fife). I am sorry that I omitted to answer part of your questions when replying in a previous issue. You say your January-hatched R.I.Reds are now seven weeks old, and a very cheery lot, and that you have only had two deaths, and these were from crowding. Naturally I am very pleased to hear that you have had so much better results on my formula, and that it beats the other which you formerly used by a good bit. Your hatc hof 95 chicks out of 118 White Leghorn eggs was certainly excellent, and is a tribute to your stock and the methods of management. The "Canadian Poultry Journal" has not yet arrived. I will note the part which you have marked when I receive it.

F. T. I really think the best advice I can give you is to wait a few more years, and gain more experience. You see you are only seventeen, and your proposal that you should rent an acre of land and start in a small way and build up, I do not think at all wise at the present. It is not a question of what is a reasonable rent, that depends so much on what neighbourhood you are in, and the value of land, and you do not give any address in your letter. You should not pay more than £5 an acre. I think your suggested method of feeding is quite a sound one, but what I fear is that you do not realise that it will be impossible for you to make a living on an acre of land from poultry, and that a far better plan for you would be to endeavour to get employment on a good poultry farm for some years until you became an expert.

"Enquirer" (Watford). I am afraid in this matter of feather eating, apart from feather plucking, I am unable to help you much. Feather plucking is a bad habit, but sometimes feather eating (by which I mean the picking up of feathers in the runs) may be due to some deficiencies in the food. I would suggest you try adding a little salt to the mash. You must not overdo this, or you will get salt poisoning. One ounce to every 10lbs. of mash, when weighed dry, would be sufficient, and I would add another five per cent. meat or fish meal to the mash. I am afraid I cannot advise you more than this.

E. T. (Dewsbury). Yes, steam-cooked chick feed in conjunction with skim milk the first week would answer very well. Take care not to overfeed, and give the chick feed in litter after the first two or three meals. You could not use my stock chick mash as a wet mash entirely, as this would be, as you say, too strong. The following would be better:—Six parts middlings, two parts Sussex ground oats, one part maize, half part meat and bone meal. These parts are by weight and not measure. It will be most difficult for me to give you a mash incorporating wheat meal and maize meal and pin-head oatmeal for chicks as a dry mash. As a wet mash you could try: Three parts wheat meal, pin-head oatmeal, and one maize meal. Now you will appreciate that these three meals are very deficient in lime salts, and, therefore, to compensate for this, you must use a higher percentage of dried milk, so that I would suggest you mix two parts dried milk with this, but if you use this as a dry mash it would be necessary to have a hopper of dry bran always before the chicks in order to give the necessary bulk, or mix with it one part of good alfalfa meal. I can quite appreciate your trouble in rearing chicks is that they feather too quickly, and then they droop and die off, that is why I always recommend bran, as if good **broad** bran is used in the early months they build up frame and not so much feather. I always notice that there is a great tendency to feather too quickly if there is too much starch in the foods.

R. E. R. (Higham Ferrers). The Wellingham experiment was two-thirds of fine white middlings, one-third of dried skimmed or buttermilk. In addition 4 ounces of Marmite was diluted with sufficient water poured over the buttermilk, and incorporated in every 7 lbs. of the mash. The grain mixture consisted of one-third cooked flaked maize, one-third finely flaked wheat, and one-third split groats, but it is important to note that this was not fed as part of the ration, only a very small quantity being given as a scratch feed. This ration was given up to the time the chicks were 14 weeks old, but you must remember that in this case it was an experiment, and it will not be necessary for you to take it past the tenth week. I cannot tell why your chicks are suffering from leg-weakness, and this may be only a symptom. Give them more exercise and see that they do not over-feed.

W. T. H. (Newlands). I do not know of any books wholly devoted to the Breeding of Fowls. The best works on the subject would be Punnett's "Heredity" and "Mendelism," by the same author. The publishers are Macmillan and Co. There are also some chapters on this subject in the "Poultry-keepers' Text Book," by E. T. Brown; publishers, Ward, Locke and Co. I do not know any books dealing with the group system. I am very glad to know that you have found much of interest in the pages of "Eggs."

POST-MORTEMS.

H. H. Infectious pneumonia. Yes, the drunken behaviour is due to the non-aeration of the blood. It is often attributed to leg-weakness; an excuse sometimes made by intoxicated persons.

G. W. S. There was ovarian disease, the ova being calcified, or in the process of becoming so. Gout affecting the heart and its membranes was displayed by a deposit of urates. Not being an infectious disease, I am not replying by post, although it must be some time before you can see this reply. Reports made in the first days of the week cannot go to Editor and printer and back again in time to appear in the current week.

A. B. A chronic case of generalised tuberculosis and the daily droppings a menace to the flock ever since Christmas. You should read carefully leaflet No. 78 issued by the Ministry of Agriculture, which will be sent free on application to the Secretary.

"Rabbits." Ruptured oviduct, flooding of the abdomen, paralysis of the sphincter permitted the "pool of liquid" in which you found her. She was excessively fat inside, and her associates should be fasted and given a few doses of Epsom or glauber salts.

C. D. There were two shelled eggs in the uterus, and a lot of yolks loose in the abdomen, which had caused peritonitis. A case of over-production or failure of the different egg-making glands to synchronise their functions. Forcing the pace is generally the cause, but it only occurs in good layers.

Major S. Pullet No. 240, 1923, had ovarian disease of the kind associated with coccidiosis in chickenhood, the kidneys were much inflamed and the liver undersized.

C. E. The chick was not affected with any contagious or specific disease, but had a pale undeveloped liver, which failed to contribute its quota to the complicated process or digestion. The gizzard was feeble and small.

C. R. J. Neither of them had any specific disease. They were simply chilled, and their lights went out like candles in a draught.

G. C. C. B.W.D. There was an article in "Eggs" on the subject on February 20th, to which you are referred.

G. I send you evidence of your correct judgment in killing the chick, but it is not likely that half-a-dozen others have been swallowing sticks. I have purposely not pulled out the offending body, so that you might see it properly.

H. LEENEY.

Some Fruit Growing Notes to Help Poultry Keepers.

By F. W. WHEELER, F.R.H.S.

ARTICLE XXVII.

EXPERIENCE TEACHES.—I have just read a most interesting article which confirms certain things in my own experiences, and which also opens up fresh fields of thought, so I propose this time giving abbreviated extracts from it, with comments, as I feel sure that readers who do not see the "Fruit Grower" journal will likewise be interested in the matter.

A Cambridgeshire fruit grower, Mr. J. C. Faircliffe, explains how he has kept both poultry and pigs in his orchards for 25 years and 15 years respectively, and that both systems have proved successful from the commencement.

The combined idea of poultry and fruit together came to him more by accident than design. Working with a chalk loam soil, overlaying chalk, with only about 15 inches of top soil, he planted apples, pears, and plums. Having put them rather too closely together (about 8ft. apart) cultivation became difficult, and, consequently, rough grass and weeds soon got the upper hand, with the natural result that the fruit produced deteriorated, and was small and unsaleable.

Here starts an interesting thing, namely, that some poultry were kept in a corner of the plantation, and it was noticed how here the trees started to produce finer fruit. Further experiments were made with small pens of poultry at different parts of the plantation, and in one year the improvement of these plots were such as to convince him that if poultry were kept under the whole of the trees, then the tree's life would be saved, besides improving the quality and quantity of the fruit. In particular, Lane's Prince Albert apples and Victoria plums gave marvellous results, and afterwards some fruit was produced good enough to win prizes at principal fruit shows.

Now for some of Mr. Faircliffe's recommendations as gained from his experiences:—

(1) Young plantations should be kept well cultivated for five years before being allowed to grass down for the purpose of running poultry under.

(2) Mr. Faircliffe thinks the best results are obtained with poultry if these are kept in small flocks, and that with these small flocks a better egg average is obtained. He prefers oblong-shaped pens with houses in the centre.

(3) He thinks—"Apples being injurious to poultry, it is better to have such housing accommodation to enable the hens to be shut up a few weeks while apples are about, and as they usually moult during this period, nothing much is lost by doing this."

(4) The wire netting used was only 5ft. high, as he found that quite sufficient, because he came to the conclusion that the heavy breeds were better than the light ones for running under the trees, chiefly because the latter had the habit of roosting in the branches. Of the heavy breeds he prefers R.I. Reds and White Wyandottes. His method of hatching early and getting winter laying birds into their permanent quarters in good time are on the lines so often recommended in "Eggs." He adds: "Keep them shut up in a house for two or three days to enable them to get accustomed to their sleeping place, otherwise they are apt to roost in the trees."

(5) Parts of the orchards where chicks are reared are given at least three or four months' rest yearly to sweeten the land.

(6) Poultry are a good control of insect pests, and "I am sure they can do an immense amount of good by controlling the Apple Blossom Weevil; also other kinds, whose habit it is to run about on the ground. Where grease banding is done, it must be put right on the bark of the trees, otherwise the hens will soon peck off all the paper."

(7) He likewise reckoned that the usual cost of digging and cultivation in a fruit orchard was saved, as well as the outlay for manuring.

(8) Finally: "It will be clear to you that if it is possible to make poultry and pig farming under usual methods pay, there is a more certain possibility of doing so when they can be kept free of expense for rent and rates."

These extracts have been more extensive than I at first thought of making; but I think that Mr. Faircliffe's experiences are very useful to pass on, so I shall reserve my proposed comments until the next article.

Erratum:—The word "never" should read "often" in commencing last paragraph of last article on Page 189.

Correspondence.

INCUBATION.

To the Editor of "Eggs."

Dear Sir,—In reply to Mr. V. O. Gray's letter in "Eggs," March 5th. I purchased two C.A.S.H. Incubators and had results almost identical to those of Mr. Gray. The machines were run in rather a damp cellar, and my hatches of both duck and hen eggs did not exceed 20 per cent.

The chicks hatched were exceptionally large, and the hatching extended over a period of *one month*—a few chicks coming out on the 22nd day, and a few daily until the 28th day, and on opening a few eggs after the 28th day I found live chicks inside. Mr. Hannaford very kindly exchanged these two C.A.S.H. Incubators for two Cycle-Hatchers, which I have found excellent.

The following experience with a Cycle-Hatcher has made me wonder, not a little:—The eggs placed in the machine for a trial were mixed W. Wyandottes, Sussex X Brown Leghorn, and Black Leghorn.

First night, 110 degrees.
First day, 104 degrees.
Second night, 104 degrees.
Third night. Lamp out, eggs quite cold in the morning. On opening a few eggs and examining same there was no functioning of the heart.
Third day, 104 degrees.
Third evening, 108 degrees.
Third night, 104 degrees.
Fourth morning, 108 degrees. Onwards the temperature was normal.

On opening a few more eggs in the morning I found the heart functioning again. Result: 22 healthy chicks from 32 eggs. The eleven not hatching were all Black Leghorns, every heavy breed egg hatched out. I believe the failure of the Leghorn eggs was due to the stock having no shelter during the biting cold weather we have experienced, my farm being situated high up on a hillside. All my stock have been fed during the winter on your summer mash, and I am forced to the conclusion that a great many blame the incubator when it is the eggs which are at fault.

Re Mr. Meeking's article on "Rearing." The importance which Mr. Meekings placed on the handling of chicks during the first week brings to mind the rather poor results which I had last year with various makes of purchased brooders. This year I have made my brooders from bacon boxes for 150 chicks and tea chests for 25 to 50 chicks. I have my little brooders with a lamp illuminating and heating the inside, all ready heated up in my incubator cellar. As the hatch comes off and the chicks dry they are placed straight into the small brooders and kept in the incubator cellar right under my eye for a week. After 48 hours water and dry mash are placed *in* the brooder. At one week old the chicks are transferred to the 150-chick brooders, which are placed in 3½ ft. by 5 ft. houses, which are now particularly draught-proof.

So far I have raised 95 chicks to five weeks old without a single loss, and at *three* weeks old the lamp was allowed to go out and remain out, although we were experiencing frost and bitter winds.

The more I learn of poultry farming, the more I realise that the individual can do exceptional things with a method which suits his temperament, another man trying the same method might fail miserably.

Yours truly,
G. F. TAYLOR.

Re YOUR NOTES ON SICILIAN BUTTERCUPS.

To the Editor of "Eggs."

Dear Sir,—I was truly sorry to see such a very misleading account of this both useful and beautiful breed. Please read the report that came out in

"Feathered World" two days after your publication with notes from various parts of the country. They *are* first-rate winter layers and A1 little table birds. You speak only of *one* colour—there are five or six. I would like you to see our pens—read their records, weigh 100 eggs, and lunch from one of our plump cockerels. I am sure you wouldn't publish such an unfair account of them after that.

Yours truly,

MRS. M. A. SCOTT.

We regret that our correspondent should consider our account of the Sicilian Buttercup misleading, but on reading same we find that we said that it has hardly realised expectations in this country, which is perfectly true. We suggested that its advent was too loudly heralded, and that the reality did not prove the ideal. Again, we must claim that this is perfectly true. Then we added, "It is a good layer of fair-sized creamy-white eggs, a good forager, fairly hardy, and a remarkably small eater." Presumably that is not the part which Mrs. Scott refers to as misleading. It is the final sentence: "As winter layers they are not very good, the flesh is dark-coloured, and they are not esteemed as table birds." Mrs. Scott encloses us a cutting from a contemporary in which ten breeders of Buttercups express their opinion on the breed. Most of them speak of it as a good table bird and as a good layer, but we particularly note that not one of them speaks of it as a winter layer. Perhaps Mrs. Scott would tell us whether the flesh is dark-coloured and what weight the birds attain at sixteen weeks old, when ready for table.—(Editor.)

MOISTURE IN INCUBATORS.

To the Editor of "Eggs."

Dear Sir,—In reference to Mr. V. O. Gray's letter in your issue of March 5th, I write as a looker-on and must confess that in all the articles upon the use of incubators it appears to me that insufficient stress is laid upon the moisture of the air in the machine during the hatching process. Placing an incubator here instead of there may succeed, but as the atmosphere in the most dry room in a house may at one time be far more moist than that of the open air a few hours before or later, and seasons and months vary in this respect as ours do, we are still at the mercy of a most capricious climate.

Can none of our scientific makers of poultry appliances provide a machine proof against these changes? The thing is done regularly in many everyday processes, and I venture to think the neglect of it is a very costly want of precaution in the case of incubators. We must aim far above Nature's "live or die" methods. We cannot afford to be so extravagant.

With apologies for venturing to address you.

Yours truly,

"ASMODEUS."

LEG-WEAKNESS

To the Editor of "Eggs."

Sir,—Could you spare me space for a few remarks in connection with the paragraph in my letter to you on the elimination of leg-weakness by the use of wire netting at the bottom of the brooder, as published in your issue of February 27th?

I have had a large number of enquiries in reference to this, and so many are of a similar nature that I would be glad of the opportunity to explain one or two points.

In the first place, let me state quite clearly that the idea was reasoned out, not from an extensive practice in chick-rearing, but rather from a long experience of chemical engineering and a knowledge of most forms of ventilation, some of them under the most exacting conditions.

It seems to me that too much importance cannot be placed on the necessity for an adequate supply of oxygen to aid the growth of the young life, when one considers how vitally dependent the system is upon it for the complete assimilation of the food and consequent body building.

Personally, all sorts of things happen to me if I have been compelled to spend several hours in an ill-ventilated room, the evil results lasting for days. That the tired feeding which inevitably follows could be called leg-weakness may, perhaps, be picturesque imagination, but there is no reason why the distressing effect is not equally applicable to a chick as to a human being.

In answer to more than one correspondent, I may say, without elaborating the matter, that the ideal construction of the brooder should be so designed as to effect the complete removal of the foul air—carbonic acid gas exhaled by the chicks—by **induced** air currents without draught; and the principle involved is that of the water-jet vacuum pump, or the ancient type of steam injector; but, of course, in a modified and very mild form.

There is also another, and quite important, feature to be considered—that of the radiation of heat, which follows the same law as light, e.g., that the intensity is inversely proportional as the square of the distance from the source. Thus, the farther away from the lamp you can place the chicks ,and still provide an adequate temperature, the less chance of chills from the sudden and frequent shuffling between the lamp-guard and brooder walls.

With the wire netting placed about two inches above the floor, and the brooder well off the ground, you get pure air distributed from this reservoir. The lamp-guard should act as a tube to supply air to the lamp; the rapid ascension of heated air and products of combustion into the radiator with the sudden expansion into the outer atmosphere, tends to create a **pull.** The hay-bed over the rest of the netting acts as a baffle, allowing air to filter through at a much slower rate, while some small holes in the sides of the walls of the chamber act as auxiliary air supplies. The effect should be to pull the foul air through the lamp-guard, and so into the radiator.

It may be of interest to state that I have applied the same principle to all my poultry house extensions by constructing them in triangular form (floor and two sides, no roof), with a louvre at the top, and ventilated at the sides on floor level. The louvre creates the pull, and the birds on perches arranged longitudinally are never in a draught, but always—even in the stillest weather—in an atmosphere free from stiffness.

I have seen poultry houses on the lean-to principle of a depth of about sixteen feet with the perches—four of them at the low end and within two feet of the roof—thus creating a pocket of heavy, stagnant, foul air; and have wondered if the designers fondly imagined that the foul air was going to flow rapidly away to the top end in a rise of about 1 in 100.

Most of my correspondents have asked whether the brooder principle can be applied to hovers. As I do not use hovers, I am unable to answer with certainty, but see no reason against it.

In conclusion, I would like to satisfy one correspondent by saying that it is quite easily possible for me to have been mistaken in my diagnosis of leg-weakness.

It may have been infectious pneumonia, or any of the other many diseases which, to use a Cornish expression, "puts a bird off its legs"; it may even have been B.W.D., without my knowing it. But the result is the same. You cannot **harm** chicks by providing an adequate supply of fresh air, and, coincidence or not, in all my hatches since January 7th, I have had only one loss, and in that case the chick escaped into the outer chamber on a night of such hard frost that even the milk in the fount was frozen.

I did have one case of (unmistakably) B.W.D., the first I have ever had (as far as I know), but fortunately was able to cure it in twelve hours.

Yours faithfully,

C. WINTHROPE SOMERVILLE.

MOISTURE IN INCUBATORS.

To the Editor of "Eggs."

Dear Sir,—I have read with interest the different etters and articles on the above subject, so I thought might interest you and some of your readers in the ethods which I employ, and have done so for two easons and found a great success.

I use hot-air machines. I have a piece of ordinary mp wick, 1¼ inches broad, which I push up the esh air flue of the heater (see illustration*) beside the ue from the lamp. This wick is placed into a vessel ontaining water, which sits beside the burner on the l tank. At the start of the hatch I push the wick up 3 inches from the bottom of the air flue, and about the seventh day I put it up 4 inches, and on the nineteenth day I put it up 6 or 7 inches, so as to get plenty of moisture at hatching time.

Care has to be taken that there is always water in the vessel, for if the wick gets dry it will burn and the fumes will go right into the egg chamber. Of course, on dry cold days at the start of the hatch I put the wick up a little further, and if I think the air is carrying more moisture I take it down a little. I do not use a hygrometer.

On a Gloucester machine the vessel measures 4 in. by 2 in. by 3 in. high, which is behind the burner, and never needs to be touched while cleaning the lamp.

On the Miller machines it is necessary to take the vessel out every time the lamp is cleaned. The vessel in this case is only 1½ in. high. I push the wick up or down with a needle and fill up with water every night.

My incubators are in a room with a temperature of between 40 to 50 degrees, and as often as not below this, and I get grand hatches every time, clean, and up to time. Of course, my breeding pens are in the pink, and fed on your formulæ, and on this little extra moisture, easily administered, and no heat lost at any time, depends the success of the show.

"WET ONE."

DISINFECTION.

By Capt. H. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

Disinfection as ordinarily carried out by anyone but a sanitary inspector is usually but a waste of time and money. Whatever the chosen agent may be, it is first of all essential that no harbours should be left for disease organisms, which have varying powers of resistance; some seemingly indestructible without actual contact of the germicide and that for a considerable time. This being proved beyond all doubt in the laboratory, where cultures are made and conditions imposed which leave no room for error. Indeed, the business firms who desire to keep and increase their sales take the utmost pains to standardise their preparations, and give guarantees that particular organisms, such as those of typhoid, will succumb to dilutions of their products of certain strength.

A building, an incubator, or a brooder, and all tools or equipment must be first thoroughly cleansed, the dirt washed off every article, and every crack and crannie made absolutely clean, as when new and unused. This applies to all nest-boxes and fittings, and the floor must not be forgotten, even though it be of earth. The natural power of disinfection in the soil is considerable, but when it has been overcome by long crowding, or ordinary use for the matter of that, the soil becomes a breeding ground of germs instead of a purifying agent. Digging out a spit and refilling with soil from a distant part of the farm is worth the labour, and the soil taken out is a manurial contribution which should be taken far and well spread. The value of the fresh earth as a disinfectant will depend rather upon its composition, clays holding excretions if wet, and cracking if dry. Chalk in large lumps as a foundation, and puddled on top, makes a good floor, but is not always to be had.

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* It was impossible to use drawing sent as it was not clear enough for reproduction.—Editor.

There is a wide choice of disinfectants, but they fall into three groups, liquids, "dries," and gaseous or aerial, and the selection will rather depend upon the kind of buildings or apparatus to be dealt with. The tumble-down shed of the kind found on most farms cannot be gassed, as it has too many leakages, but the modern house can generally be made fairly air-tight, by which I mean sufficiently free from outlets to retain the bulk of aerial disinfectant until it has done its work. Some wet cloths to stop up gaps will do much. Economy of material demands that incubators and brooders and coops, tools and vessels, should be brought into a house that is to be gassed.

Poultry houses that are actually in use can be gassed in the morning and inhabited again at sunset if sufficient draught is made through them when the operation is deemed to be finished. My own fancy is for aerial disinfection, as, given the right material, it will find its way where no liquid is likely to do so, however well distributed by the most efficient of sprayers. Liquid disinfectants must leave the house damp, and the floor particularly so. The gassed building should be closed up as tightly as may be for five or six hours, and if the leaks are not serious nothing can survive. It may be remarked here that aerial disinfectants diffuse more satisfactorily in high temperatures, and a warm day should be preferred. A moist atmosphere also favours dissemination, and some boiling water from a fine-rosed garden can spread over the floor lightly is a help.

For every thousand cubic feet of a building the allowance should be 23 ounces of permanganate of potash and three pints of commercial formaldehyde (which is a forty per cent. solution and kept by all druggists). An earthen or pottery dish of large size should be used and the permanganate spread equally over it. The operator should have a towel over his face, and finally pour the formaldehyde over the dish and quickly skip and close the door, looking round when he has got outside to see if he has missed any places from which the gas could escape. Chlorine gas generated from salt and manganese may be preferred by some, or sulphurous acid gas from the burning of sulphur. The most powerful of all aerial disinfectants is produced by dropping cyanide of potassium into sulphuric acid, but fatal accidents to attendants have occurred by opening the chamber too soon, and this method is not recommended for home use, although it is good for a kaffir crawl. The formaldehyde, as above described, is the best, and the materials, bought in quantity, are not too expensive. The purchaser must order in advance, as retail chemists only keep small stocks, and will always wish customers to take pure drugs rather than the "commercial" qualities, which answer quite as well.

Those persons preferring a liquid should be prepared to take much trouble in its application, or some little spot will be overlooked, and a Noah family get left to repopulate, in much quicker time. The use of a whitewash brush is helpful, especially where a large surface is to be dealt with, but the operator need be careful of himself, for whether he use a five per cent. formaldehyde in water, a solution of chlorine, or any other strong germicide, he is liable to injure his skin and perhaps splash his eyes.

If the question of cost is a very serious one with him, he may make the most efficient of disinfectants by mixing six ounces of chlorinated lime or bleaching powder with a gallon of water, shaking it up in a well-corked stone bottle, and leaving it until next day before spreading with the cheapest whitewash brush he can buy, because it will perish by the action of the chlorine. The proportion can, of course, be maintained in making larger quantities, but much strength will be lost by mixing in a copper or other open vessel. Eusol is another disinfectant that can be home-made at slightly greater cost, and is not so destructive to clothing and brushes. The proportions are two ounces each of boracic acid and chlorinated lime to the gallon of water.

The carbolic powders are for the most part proprietory preparations, and are not easy of preparation outside a laboratory. If these are chosen they should be carefully puffed into all joints and spaces where parasites might harbour.

From what has been said above, the reader will probably cast his vote for gaseous disinfection, as it is more effectual in reaching every recess and saves labour of a kind for which there is no keen competition, and is too often assigned to the least competent person on the establishment.

SUSSEX POULTRY CLUB.

A Committee Meeting of this Club was held at 3, Vincent Square on Wednesday, March 5th, at 11.30.

Present.—Mr. J. Russel, President, in the chair, Messrs. Amey, Ashburnham, Grant, Cree, Watson, Robinson, Falkenstein, and the Secretary.

Apologies were received from Messrs. Rogers and Goode.

After the minutes had been read, approved and signed, the subject of the tender of the club for birds to be sent to the Barcelona Congress was dealt with.

It was agreed that the birds should be judged on Tuesday, March 11th, at Mr. Russel's, the judges to be Messrs. Amey and Cree. Tenders had been received from Major Morrison, Mr. Russel, Lady Anderson, Mr. Winter, Mrs. Grant, and Mr. Ashburnham.

The birds were to be judged according to standard.

Specials.—It was agreed that specials to be awarded at the various shows should be of the value of 10s.

Judges' Fees.—It was agreed that in future the Club should only be responsible for fees when they definitely "nominate" a judge, and that the fee should be £3 3s. in the case of the larger shows, and £2 2s. for the smaller.

In all cases, where the Club merely "suggest" a judge the various Societies to be responsible themselves.

Finance.—It was agreed that in future Life Membership subscriptions should be capitalised.

HAROLD MAYALL,
Hon. Secretary

PRESTON AND DISTRICT UTILITY POULTRY SOCIETY.

Seventh Annual Six Months' Laying Competition, held at Woodland Grange, Penwortham, under the management of Mr. Rainford.

Fifth Month's Report, January 31st to February 27th, 1924.

All the birds are in good health, there have been two deaths during the month—No. 57 W.L. and 43 W.W.

The following birds are moulting, viz.: 14, 16, 17, 20, 32, 34 and 52, all W.L.; 82 and 84 R.I.R. (No. 106 R.I.R. and 10 W.W. are broody).

E. COLLIER, Hon. Sec.

FIFTH MONTH'S EGGS.

Section 1.—White Wyandottes.

Pos.	Name.	Total to Date.	Total Points to Date.
1.	H. Pinder	333	3320
2.	J. Finn	325	3248
3.	J. Hodgson	303	2984
4.	R. Mills	300	2816
5.	J. R. Dawson	292	2772
6.	W. Sharples	284	2752

Section 2.—Any Other Variety Heavy.

Pos.	Name.	Total to Date.	Total Points to Date.
1.	J. C. Barnes (R.I.R.)	307	2992
2.	J. Moon (R.I.R.)	325	2878
3.	J. Phethean (B.O.)	286	2648
4.	C. C. Humber (R.I.R.)	254	2492
5.	Douglas Ann (L.S.)	228	2092
6.	H. Gabbott (R.I.R.)	173	1718

Section 3.—White Leghorns.

Pos.	Name.	Total to Date.	Total Points to Date.
1.	J. Moon	310	2870
2.	J. Phethean	296	2602
3.	G. L. Shields	233	2274
4.	W. Braithwaite	233	2262
5.	Mrs. T. A. Tatton	239	2100
6.	R. Mills	216	2064

FIFTH MIDLAND LAYING TEST.

Fourth Month (January 28th to February 24th, 1924).

Despite the bitter north-east winds that have prevailed during this month, egg production has maintained a very fair average, the percentage of second grade eggs still keeping as low as 3 per cent.

The temperature for the month averaged about 28 degrees Fahr., four degrees below freezing point, the last fortnight or three weeks being very much colder than the first part of the month. This no doubt has affected the egg production of the Light breeds, especially White Leghorns, keeping them very low in production.

This month Mr. H. W. Gee, Bromsgrove, takes the lead, his Wyandottes having a score of 358 eggs, including six second grade. This is closely seconded by Messrs. Fowler Bros., Earlswood, near Birmingham, whose birds, also White Wyandottes, have laid 353 eggs during the four months of the test, five of which were second grade. Mr. Gee's birds have done splendidly during the cold weather, only one of them (No. 437) having missed one day during the month, the other three laying a sequence of 28 eggs each.

Four birds have been in the isolation pens, notably Nos. 29 and 43, for chicken pox, and 235 and 166 with canker in the mouth. These birds are now convalescent and will be returned to their pens in a few days. There have been no deaths during this month, a good degree of general health being maintained.

Feeding has been similar to previous months, using the Dry-cum-Wet Mash system. A notable feature has been an increase in consumption of dry mash by the heavy breed sections particularly.

The slight indication of chicken pox and diphtheritic canker trouble has meant for strict medicinal disinfectant treatment in both drinking water and wet mash, which is decidedly effective in controlling the development of these contagious troubles with poultry.

ALBERT N. BRAIN.

WHITE LEGHORNS (6 leading pens).

Owner	Pen Total.	Total Eggs in 112 days.	Total value	Position to date.
C. H. Hudson and Son, Coventry	72	253	£3 6 9	1
H. Boxall, Dorking, Surrey	51	221	£2 18 3½	2
E. Harrison. Knutsford	59	220	£2 17 10½	3
Capt. Rutherford, Staplehurst, Kent	58	217	£2 17 7	4
Clophill P.F., Ampthill, Beds.	45	195	£2 12 1¾	5
E. M. Saul, Hentland. near Ross.	61	197	£2 11 4½	6

WHITE WYANDOTTES (6 leading pens).

Owner	Pen Total.	Total Eggs in 112 days.	Total value	Position to date.
H. W. Gee, Bromsgrove	111	358	£4 14 9¾	1
Fowler Bros., Earlswood, B'ham	100	353	£4 13 9	2
S. and T. Greenall, nr. Grantham	69	308	£4 2 4	3
Ashbrooke and Brooke, Ches.	68	275	£3 12 3¼	4
M. F. Phelan, N. Devon	45	267	£3 11 6¾	5
Will Barron, nr. Preston	60	261	£3 9 3½	6

RHODE ISLAND REDS (6 leading pens).

Owner	Pen Total.	Total Eggs in 112 days.	Total value	Position to date.
Major Kingscote, Newport Pagnell	47	260	£3 9 6¾	1
Easton P.F., nr. Norwich	63	209	£2 15 1¼	2
Wilson Beattie, Northampton	53	199	£2 12 9	3
Mrs. K. Simpson, Carlisle	55	197	£2 12 3¼	4
A. Merchant, Shipston-on-Stour	49	205	£2 11 11¼	5
Miss M. Greham, Banteer	71	198	£2 11 7	6

LIGHT SUSSEX (3 leading pens).

Owner	Pen Total.	Total Eggs in 112 days.	Total value	Position to date.
Fred Gardner, Stalham, Norfolk	59	235	£3 2 5½	1
F. R. Welch, Bewdley	55	199	£2 12 10	2
Mr. and Mrs. Jacobs, Chatham	55	174	£2 5 10¾	3

A.O.V. LIGHT BREED (3 leading pens).

Owner	Pen Total.	Total Eggs in 112 days.	Total value	Position to date.
G. C. Woodbridge (Anconas)	52	163	£2 3 2¼	1
M. H. Brady, Edgbaston (Anconas)	54	157	£2 1 4	2
R. B. de Vere Packford (B. Legh'ns)	44	125	£1 15 8¼	3

A.O.V. HEAVY BREED.

Owner	Pen Total.	Total Eggs in 112 days.	Total value	Position to date.
H. Thomas (Buff Orpingtons)	39	198	£2 15 4½	1
W. Hamnett (Buff Rocks)	58	141	£1 18 6	2
Major Shewell (Barnevelders)	32	131	£1 14 5½	3

WYE COLLEGE 48 WEEKS' DUCK TEST, 1922-1923.

Held at The South-Eastern Agricultural College, Wye, Kent, in conjunction with the N.U.P.S. and U.D.C.

LIST OF AWARDS.

Silver Cup, presented by the South-Eastern Agricultural College for the best pen record in the whole Test, won by Mr. W. R. Partridge, of Woodmancote, Cirencester, with his pen of five White Runners, which laid 1,101 first grade eggs.

The National Utility Poultry Society's Cup, for the second highest pen record, won by Mr. S. Huxley, of

YORKSHIRE LAYING TRIALS.

Report of Fifth Month.

Large Breeders' Sections.

WHITE WYANDOTTES.

		Eggs.	Score.
1.	Frank Snowden	260	1452
2.	R. Rodwell	292	1439
3.	S. and T. Greenall	274	1367

WHITE LEGHORNS.

1.	R. Rodwell	273	1471
2.	Fred Irvin	198	1075
3.	Major A. W. Disney Roebuck	203	959

BLACK LEGHORNS.

1.	Mrs. Paulet	242	1329
2.	Lord Dudley Gordon	139	590
3.	H. Smith	129	560

A.O.V. LIGHT.

1.	C. Killingbick	147	736
2.	Ryhall Mill P. Farm	156	548
3.	A. Gawthropp	66	320

RHODE ISLAND REDS.

1.	Miss De Kitchin	158	825
2.	Alderson Smith	146	640
3.	A. Gawthropp	121	541

SUSSEX.

1.	R. S. Williams	121	676
2.	Mrs. F. Cockshott	102	535
3.	H. D. Barley	96	405

AUSTRALORPS.

1.	H. R. Parsons	107	510
2.	Australorps Farms, Ltd.	50	275
3.	Lady Waley Cohen	43	208

A.O.V. HEAVY.

1.	Herbert Thomas	268	1398
2.	H. Holmes	128	662
3.	R. E. Gifford, M.A.	112	612

Small Breeders' Section.

WHITE WYANDOTTES.

1.	C. Lambert	121	682
2.	Frank Clark	98	532
3.	Rev. R. Pulleine	66	379

WHITE LEGHORNS.

1.	F. C. Tomlinson	85	474
2.	Smith Conyers	59	348
3.	J. H. Gundry	55	303

A.O.V. HEAVY.

1.	Mrs. Bamber	60	327
2.	J. Fawcett	49	290
3.	W. C. Crossland	60	288

A.O.V. LIGHT.

1.	G. T. Marsden	58	338
2.	H. Helm	27	157
3.	W. G. Bullen	10	58

GIFT SECTION.

1.	H. D. Barley	50	282
2.	Jesse Light	42	248
3.	Fred Irvin	32	184

G. R. POOLE, Manager.

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

MINUTES of the Quarterly Meeting held in the Master Builders' Rooms, Mount Street, Preston, on Saturday, March 8th, 1924. Present: Mr. J. Wrennell (Chairman), who occupied the Chair; Mr. W. Hamnett (Life Member), Mr. W. Grove (Auditor), Messrs. J. G. Willacy (Kirkham), J. Graham and G. Waite (Barrow), F. Thompson (Oldham), J. Fowler (Darwen), A. Grime (Ramsbottom), J. Dewhurst (Edenfield), E. Jackson, C. Longbottom and E. Evans (Burnley), W. Fletcher and W. Martindale (Westhoughton), F. J. Butterworth (Rochdale), A. Dunn (Bury), W. A. Hall (South Manchester), S. Marson and R. Bridge (Astley Bridge), M. Houghton (Radcliffe), T. Edmundson, H. Gregson and H. Carr (Blackburn), H. Willis (Horwich), J. Whalley (Preston), A. Glover and H. Collier (Leigh), A. Sharples and J. Edmundson (Balderstone), T. Hudson (Rawtenstall), J. R. Hull, J. W. Pearson and D. Braithwaite (Poulton), H. Sutton (Lancashire), A. Hallows (Clitheroe), J. Barnes (Haslingdon), J. Hall (Blackburn Small Holdings), J. E. Morris (Atherton), and E. Collier, Organising Secretary.

Apologies for non-attendance were received from Mr. A .T. Walker (President), J. H. Hill (Treasurer), and H. Holt (Rochdale).

MINUTES.—The minutes of the last Quarterly Meeting, held at Preston on September 1st, 1923, were read, and on the proposition of Mr. J. E. Morris, seconded by Mr. T. Hudson, these were confirmed and signed.

AFFILIATIONS.—Applications for affiliation were received from Moore and District U.P.S. (50 members) and Freckleton U.P.S. (30 members; on the proposition of Mr. F. Thompson, seconded by Mr. J. Whalley, these Societies were affiliated.

CORRESPONDENCE.—A letter was read from Tyldesley Society, asking for particulars re affiliation to the Federation. The Secretary stated that these had been forwarded. A letter was read from the British Broadcasting Co. (Manchester Station) in reply to a request from the Federation to broadcast poultry lectures, stating that they did not think it of sufficient interest to broadcast poultry talk and lectures, as there are plenty of poultry papers, etc. The Secretary stated that he had referred the matter to the National Poultry Council, which body was giving it their attention.

NATIONAL POULTRY COUNCIL MEETING, held at Hereford.—Mr. W. Hamnett gave a report of this meeting, in which he stated that the Legal Defence Fund now amounted to £433 8s. 8d., and hope this fund would be considerably increased. He also stated much regret was expressed at the Hereford Meeting because Mr. Tom Barron had found it necessary to resign from the N.P.C. and Advisory Committee, and the N.P.C. hoped he would soon be able to take active part again on the Council. In his remarks he also said, the Northern Breeding Station was being proceeded with, all the pens had been mated up, and everything was going ahead. This report was passed as very satisfactory on the proposition of Mr. S. Marson, seconded by Mr. W. Grove, and coupled with this proposition was a vote of congratulations to Mr. Hamnett on his being elected a member of the Advisory Committee.

FEDERATION SHOW for 1924.—An invitation to hold the Show at Blackpool had been received from the Blackpool Society. An amendment was proposed by Mr. J. Dewhurst that the Show be held at Bolton if it was convenient to get accommodation. This was seconded by Mr. J. E. Morris. On being put to the vote Blackpool carried by 17 votes to 11.

SHOW COMMITTEE.—It was resolved that Mr. J. Wrennell, Mr. W. Hamnett, and the Secretary act as the Show Committee, on the proposition of Mr. J. Whalley, seconded by Mr. T. Hudson.

SHOW JUDGES.—A request was made by several delegates to allow the affiliated Societies to nominate Judges for the Show, and this was agreed to. Societies must send in their nominations previous to the next quarterly meeting.

WESTHOUGHTON SOCIETY'S Notice of Motion to fix a Standard for Utility Poultry.—This was dealt with by Mr. W. Grove (of the Educational Committee) in his report.

STOP WATCH COMPETITION.—The Secretary stated that all the counterfoils and unsold tickets had not come to hand, therefore it was found necessary to leave this matter over until Thursday next, March 13th. Mr. J. Wrennell, Mr. Hamnett, Mr. J. Edmundson, and the Secretary to open the case, which the watch had been sealed up in on that date. All tickets and counterfoils to be ignored if not returned to the Secretary by Thursday morning next, on the proposition of Mr. F. Thompson, seconded by Mr. W. Grove.

ACCOUNTS. — Accounts submitted to the Finance Committee for Lectures were passed for payment.

SUB-COMMITTEE REPORT—FINANCE.—Mr. Hamnett reported on behalf of this Committee. He stated that Rochdale Society had offered £1 1s. towards the Stop Watch Competition Fund, seeing they had not sold any tickets, and this was accepted. An application from Rochdale Society re Free Lecture be granted if the Secretary finds they did not have one previous to the cancellation of them. A Balance Sheet received from the Show Committee (1923) was accepted. Mr. A. W. Hall proposed and Mr. Hallow seconded that this report be accepted.

EDUCATIONAL PROPAGANDA. — Mr. W. Grove, Chairman of this Committee, reported the list of Lecturers and Judges as per confirmation received by the Secretary with additions be approved, with a request that the Secretary receives definite word from Mr. T. Barron before going to print (Mr. Barron being away at present).

STANDARD OR TYPE?—The report asked for the co-option of Messrs. J. Wrennell, W. Hamnett, T. Hudson, and J. Edmundson for their guidance and advice on this important question, that in order to make a definite move this Committee at its next meeting will discuss the type, and the following breeds only will be taken:—Leghorns, Wyandottes, R.I.R., Light Sussex, and Buff Orpingtons.

The type to include size, weight, following which breed characteristic will be dealt with generally.

Each Society is invited to forward opinion or information to assist and help forward this work. A long discussion followed this report, and delegates present are earnestly requested to convey as much of this discussion as possible to their members. Mr. Grove then proceeded to deal with the progress of the Year Book, and asked if he may abandon it for 1924 on account of insufficient advertisements, but he wished to follow this work up and prepare to issue same for January, 1925, and this was agreed to.

LAYING TEST COMMITTEE.—Mr. J. Edmundson, Chairman of the Committees, reported on their behalf. It was resolved that Messrs. J. Wrennell, W. Hamnett, T. Hudson, and J. Edmundson pay a visit to the test ground.

Mr. H. Gregson asked if the Secretary would send a letter of appreciation to the National Poultry Council for their President and Secretary having visited several of the Federation's affiliated societies.

The Secretary asked for a small Committee to be formed to get some particulars for a visit to several Lancashire test grounds and poultry farms for the Canadian visitors who hope to be over about May. It was resolved that Mr. W. Hamnett, Mr. H. Sutton and the Secretary deal with same.

The pooling of delegates' railway fares come out at 3s. 5d per head.

E. COLLIER,
Organising Secretary.

P.S.—Affiliation fees for 1924 are due. Will Secretaries please give same attention as early as convenient.

KEIGHLEY AND DISTRICT BRANCH.

The annual general meeting of the above was held at the Temperance Hall, Keighley, on March 5th. There was a good attendance of members present.

Mr. Frank Snowden was unanimously elected President, Mrs. Wilson, of Minorca Farm, Denholme, as Secretary, with Mr. H. Downsbrough, Hon. Treasurer. A strong committee was formed, and arrangements made for next year's laying test. The funds are now being collected.

During my recent visit to the branch I was impressed with the enthusiasm of its members, and it promises to become one of the strongest branches that we have.

As I believe I mentioned in a previous issue, it was proposed to hold a Show some time during November.

NATIONAL POULTRY COUNCIL.

RATING OF POULTRY FARMS.

A most important case was decided in the Huddersfield County Police Court on the 11th inst., having been postponed from January 8th.

The case was that of Messrs. Whitwam Bros., of Bank Bottom Farm, Golcar, who have occupied a small-holding for twenty years. Up to the present time the land was rated as Agricultural, but consequent upon the owners having gone in more extensively for poultry, the Rating Authority claimed that the land was not now being used for agricultural purposes, and that as poultry farmers they could not claim to be assessed on the agricultural basis.

Upon the facts being made known, the National Poultry Council undertook the defence of this poultry-keeper by reason of the fact that there are large numbers of occupiers who are operating under similar conditions.

The Bench gave judgment as follows:—

GOLCAR URBAN DISTRICT COUNCIL *v.* WHITWAM.
RECOVERY OF GENERAL DISTRICT RATES.

The Bench find as a fact that the land occupied by defendant is agricultural land within the meaning of the Agricultural Rate Act, 1896, and is not taken out of the definition of agricultural land by reason of the poultry kept upon it.

According to the evidence, the farm comprised 11 acres of land with buildings to accommodate one horse, four head of cattle, and a number of pigs. The farm stock actually kept at the date of hearing being one horse, one milk cow, two heifers, and 29 pigs—that is, with the exception of one stand, the buildings were fully occupied.

All the land is grazed by the cattle, and last year four acres were mown, thus the whole of the 11 acres are used for general farming and no part of the farm is used exclusively for poultry, neither is any trade done in poultry appliances or poultry food.

It appears that prior to last year defendant was allowed relief to the District Rate to the extent of three-fourths on the land, and that this year, pursuant to the Agricultural Rates Act, 1923, similar relief has been allowed in the case of the Poor Rate.

In the opinion of the Bench, the defendant has shown sufficient cause for non-payment of the sum demanded. They consider the defendant's assessment to the Poor Rate is correct, and that he should receive the same relief with regard to the District Rate. In these circumstances, the Bench made an Order for the payment of £2 15s. 6d., being £2 1s. 2d. in respect of the buildings and 14s. 4d. being one quarter of the rate in the pound payable in respect of the land.

The Bench wish to make it clear that their decision is based on the special facts of the case, and has no bearing on the general point discussed during the argument as to whether a poultry farmer, pure and simple, would be entitled to the relief granted by the Act of 1923.

It will be seen that the Magistrates did not consider that poultry farmers pure and simple would be covered by this decision. However, such need not be accepted, and poultry-keepers are advised to resist claims for full rates upon land and to report any such cases to the National Poultry Council, 20-21, Essex Street, Strand, London, W.C.2.

Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Stokes, Mrs. D. R., Culmore House, Myroe, Co. Derry, Via Belfast.
Van-der-Gucht, Maj. G. T., The Priory, Kemerton, Tewkesbury.
Hobson, H., Wrentnall House, Pulverbatch, Nr. Shrewsbury.
Distin, C. W., Glassonby, Kirkoswald S.O., Carlisle, Cumberland.
Storry, B. D., The Utility P.F., Coxlodge Station, Gosforth, Northumberland.
Wharton, W., 13, Sand Street, Keighley.
Fanshawe, Lady, Lubbersdown, Wheatley, Oxford.
Smith, Miss M. M., 1, Gold Tops, Newport, Mon.
Upjohn, Wm. H., Annesley Bank, Lyndhurst, New Forest.
Board, Mrs. J., Lower Metcombe, Tipton St. Johns, Ottery, St. Mary, Devon.
Engineer Commander P. Lovell Butt, R.N., Summerlands, Cranleigh, Surrey.
Foard, Elsen L., Marlborough Street, Faringdon, Berks.
Kelly, Tom, Wallyford, Musselburgh, Edinburgh.
Bown, S. W., Bushy House, Gressenhall, East Dereham, Norfolk.
Naylor, Hon. Mrs., Leighton Hall, Welshpool.
Albon, A. E., Sandhills, Sherrill Heath, Botley
Fairfield, H. N., 37, Pembroke Road, Bootle, Liverpool.
Evans, Owen, Glanywern, Arthog, Dolgelley.
Osmaston, D. F., Woodside, Bradfield, Berks.
Salter, Lawrence, 79, Chester Street, Wolverhampton.
Hassan, Mrs. G., 16, Harlington Road, Feltham, Middx.
Mellor, Jas. A., Windle Royd, Warley, Halifax, Yorks.
Hannah, Geo., 106, John Finnie Street, Kilmarnock.
Greer, Mrs M., Curragh Grange, The Curragh, Co. Kildare.
Lance, Kenneth, Millsplatt Farm, Box Hill, Nr. Bath.
Burn, Mrs. R. F., Ivy Cottage, Cradley, Malvern.
Corfield, Capt. W. B., M.C., The Homestead, Iver Heath, Bucks.
Howard, Horace, Brookside, Salt Hill, Slough.
Freeman, J. W., Secretary's Office, Melton Constable Park, Norfolk.
Shaw, G. S., Dane in Shaw Mill, Congleton, Cheshire.
MacFarlan, Mrs. H., Knockandhu, Glenlivet, Banffshire.
Armitage, Geo., 57, Long Lane, Dalton, Huddersfield.

AYRSHIRE AGRICULTURAL ASSOCIATION.

CATTLE, ETC., SHOW ABANDONED.

The Directors at their meeting on Tuesday last agreed to abandon their Show, fixed for 29th and 30th April, in all its departments. It was generally conceded that the Cattle, Sheep and Pig sections of the show could not possibly be held owing to the Foot and Mouth Disease Restriction Orders. Suggestions, however, were made that the Show might be continued so far as Horses, Implements, Dogs and Poultry were concerned. A letter from the Ministry of Agriculture and Fisheries was submitted as to the probabilities of the Orders being cancelled in the event of no further outbreaks of the disease. Outbreaks, however, had occurred in the district since the date of the Ministry's letter. Ultimately, taking into account the concontinued and frequent outbreaks in the county their possible recurrence, also the risk of spreading the disease which Show gatherings of the kind tended to increase, and that a reduced Show could not possibly be conducted with success, the directors agreed to abandon the Show in all its departments.

This decision covers the Poultry Show, run under the auspices of the Association.

LECTURE AT MANCHESTER.

The tenth of the series of Poultry Lectures, under the auspices of the Manchester Agricultural Committee was held at the Princess Road School, Moss Side, on Friday evening, March 7th, 1924.

Councillor J. E Hutchinson, who presided, speaking of the work of the Committee, gave the meeting to understand he was in full sympathy with the movement, and thought pressure should be brought to bear for the security of tenure of "plots," when we were faced with such astounding figures of imported dairy produce. The latest figures being as follows:—

£37,000,000 — Butter.
£12,000,000 — Cheese.
£4,000,000 — Margarine.
£11,000,000 — Eggs in Shell.
£3,000,000 — Eggs not in Shell.
£2,000,000 — Milk.

It was of the utmost importance that every producer in the agricultural industry, from the large farmer to the smallholder and allotment holder, should receive help and encouragement to support our own people, thereby husbanding our finances, spending within our own country and amongst our own people. Although it has been reported that the Government may possibly not have time this session to deal with the security of allotments, it is to be hoped something may yet be done to safeguard the labours and interests of those, who through healthy occupation and recreation, make for good law-abiding citizens.

The subject of the evening, "Poultry Keeping for the Small-Holder," was appropriate, seeing the Chairman of the Manchester Agricultural Committee, and his Vice, have taken a keen interest in ex-Servicemen and small holdings.

Mr. Tom Hudson, of Waterfoot, the lecturer, said it was exceedingly creditable what Manchester had done in the interests of this movement, helping its citizens to produce the new-laid egg and to enjoy it. (It would be very helpful to this great and important work if the Housing Sub-Committee would adopt their regulations to give greater assistance to the efforts of the Manchester Agricultural Committee).

The housing of poultry was the first consideration, and, secondly, cleanliness. If properly housed, and every attention given to cleanliness, the fowls would commence with the opportunity of returning the best results and the minimum of risk through disease.

There were several good litters for the scratching shed and intensive house, peat moss litter being very good, and in the use of this it was not entirely necessary to provide a separate dust bath. To make for the best returns it was necessary the smallholder should obtain the winter egg. To obtain the production in those four valuable months, the pullets must be bred at the right time from good, sound and reliable stock only. It is more economical to pay the shilling extra between doubtful stock and that from a genuine source, whose aim is the advancement of the Poultry industry, thereby, through careful selection and breeding of pure breeds with the aid of the trap-nest, can be relied upon to have the bred-to-lay stock. It has been said cross-breeds are stronger, yet, with careful attention and good management, it is just as possible to obtain as strong in the pure breeds, and, egg production being the aim, smallholders will have the greater opportunity from the breed to lay birds. In order to gain the maximum production of eggs, it is essential the birds are in the pink of condition, this being only possible by observation and handling of the fowls regularly, the findings from which tell how to regulate the feeding.

To those who breed from their own stock do not feed for the maximum number of eggs for table use. This means in the chickens we hope to hatch results which will not be as good had we sacrificed some of those eggs at the earlier period.

Many questions were asked and replied to, the Chairman bringing an interesting meeting to a close with a hearty vote of thanks to the lecturer for his services. W. G.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 14th MARCH, 1924.

GRAIN AND FEEDING STUFFS.—All descriptions of grain are in very quiet demand and prices are generally easier. English wheat now averages 10s. 10d. per cwt., while barley, although not quotably altered, maintains its price with difficulty. Oats, both home-grown and imported, are in dull request at easier rates, and maize is also a shade cheaper. in spite of scarcity, Argentine now averaging 10s. 9d. per cwt.

Demand for feeding stuffs is less active, and prices for most kinds have a distinctly easier tendency. Bran meets a fairly steady trade, averaging £8 per ton, or 2s. 6d. less than last week, but middlings have fallen sharply and average £8 17s. per ton, or a reduction of 7s. 6d. per ton on the week. Most descriptions of meals are also cheaper. Linseed cake is decidedly lower in value, but cotton cakes remain in fair request, although slightly cheaper in London.

MILLERS' OFFALS.—Bran (British): Hull, £7 12s.; Liverpool, £8 10s.; London, £7 17s. Broad Bran: Bristol, £9 15s.; Hull, £9 2s. London, £8 10s. Fine Middlings (Imported): London, £9 10s. Coarse Middlings (British): Bristol. £9 15s.; Hull, £8 10s.; Liverpool, £9; London, £8 2s. Pollards (Imported): Bristol, £8 5s.; Hull, £7. Rice Bran: Bristol, £8 2s.; Liverpool, £8. MEAL. Barley Meal: Bran: Bristol, £8 2s.; Liverpool, £8. MEAL.—Barley Meal: Bristol, £11 7s.; Hull, £10 18s.; London, £10 17s. Maize Meal: Bristol, £12; Hull, £11 10s.; Liverpool, £11 10s.; London, £11 15s. Maize Germ Meal: Bristol, £11 5s.; Hull, £10 15s.; London, £9 17s. Maize Gluten Feed: Bristol, £11; London, £9 7s.

EGGS AND DEAD POULTRY.

Both home produced and imported eggs are easier, in spite of somewhat limited offerings, and buyers are reported to be purchasing only for immediate requirements in anticipation of lower rates. English poultry is in small supply and quotations are generally firm; high prices in London have resulted in a slow trade, with an increased enquiry for imported poultry.

Week-end Prices—Eggs (per 120):—British, 17s. 6d., 16s.; Irish, 16s. 6d., 15s.; Danish, 18s. 6d., 16s. 9d.; Dutch, 18s., 16s. 6d.; Styrian, 14s. 6d., 14s.; Egyptian, 11s. 6d., 10s. 9d.; Belgian, 16s. 6d., 16s.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 0d., 1s. 10d.; Irish, 1s. 8d., 1s. 6d.; Others, 1s. 8d., 1s. 6d. Ducks, 1s. 9d., 1s. 6d. Geese, 1s. 2d., 10d. Turkeys, 1s. 8d., 1s. 4d.

EGGS.

Per Doz.—Ashford: First, 1s. 6d.; Second, 1s. 5d. Birmingham: First, 1s. 9½d.; Second, 1s. 9d. Carlisle: First, 2s. 0d. Chelmsford: First, 1s. 8½d.; Second, 1s. 6½d. Denbigh: First, 1s. 8d.; Second. 1s. 6d. Derby: First, 2s. 0d. Dorchester: First, 1s. 4d. Exeter: First, 2s. 0d.; Second, 1s. 10d. Guildford: First, 1s. 9d.; Second, 1s. 5d. Hereford: First, 1s. 6d. Hull: First. 1s. 10d. Ipswich: First, 1s. 9d.. Second, 1s. 6d. King's Lynn: First, 1s. 9d.; Second, 1s. 6d. Lincoln: First, 2s. 0d. Llandilo: First, 1s. 9d.; Second, 1s. 6d. Montgomery: First, 1s. 9d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 9d. Norwich: First, 1s. 9d. Oswestry: First, 1s. 7d.; Second, 1s. 6d. Penzance: First, 1s. 3d.; Second, 1s. 2d. Salisbury: First, 1s. 4½d.; Second, 1s. 3d. Shrewsbury: First, 1s. 8d.; Second, 1s. 6d. Skipton: First, 2s. 3d. Truro: First, 1s. 5d. York: First. 2s. 0d.; Second, 1s. 10d.

FOWLS.

Per lb.—Birmingham: First, 1s. 6d.; Second, 10d. Derby: First, *5s. 3d.; Second, *3s. 0d. Exeter: First, 1s. 7d. Hereford: First, 1s. 6d.; Second, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Lincoln: First, *5s. 0d.. Second, *3s. 6d. Llandilo: First, 2s. 1d.; Second, 1s. 4d. Newport (Mon.): First, 1s. 7d.; Second, 1s. 3d. Shrewsbury: First, 1s. 4d.; Second, 1s. 2d. Truro: First, 1s. 3d. York: First. *5s. 6d.; Second, *4s. 3d.

DUCKS.

Per lb.—Exeter: First, 1s. 6d. Hereford: First, 1s. 4d. Llandilo: First, 2s. 1d.; Second, 1s. 8d.

* Per Head.

Classified Advertisements.

(PREPAID RATES).

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS, per line, extra 9d.
DAY-OLD CHICKS ,, ,, 1s.
DAY-OLD CHICKS ,, ,, 1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3 insertions for the price of 2
6 ,, ,, ,, 4
9 ,, ,, ,, 6
13 ,, ,, ,, 8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S E.16. to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office FIRST POST FRIDAYS for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

PULLETS.

FOR SALE.

R.I. Red, Anconas, W. Leghorns; 12s. 6d.-21s. each; related Gold Medal Pens.—Berney, W. Common, Harpenden.

Light Sussex, February hatched Pullets, from Thomson's direct, gold medal competition strain; from 12s. 6d.—Mathison, Esless Hall, Wrexham.

WHITE AND BLACK LEGHORNS.

Wye College Winter Laying Test, just concluded. My pen of Four Black Leghorn Pullets secure first position. Specialities: Pens of six to 12 three months' old Pullets. The breeds most suitable for suburban dwellers. Young Cockerels, two months old individually bred from my Registered S.P.B.A. Pens. Send for Mating and Price List.—Captain Owen, Horeham Road, Sussex.

ERNEST ORR,

Brooklands, Redhill, Surrey. White Leghorns and R.I. Reds. Egg production and breed type. Pullets from flock awarded 1st and gold medal for best utility light breed at Crystal Palace, 1923. 1922 Hens, 8s.; Pullets, 10s. 6d.; Eggs, 7s. 6d. D.O.C. All by L2 stock. Inspection invited.

i1.

The Early Bird.

THE early bird, well proportioned, well feathered, with plenty of bone and stamina, is the one that pays.

Quick growth without forcing means less feeding cost, but to get this result **every beakful** of the Mash must be **cram full of right nutriment,** and melt in the mouth.

Crude, roughly mixed Mashes, **which shake apart,** cannot pay nearly so well as Ful-O-Pep Growing Mash, which is so thoroughly milled and mixed that neither you nor your chicks can tell which is which of the ingredients—the pick of the world's markets are supplied in Ful-O-Pep Mashes. **It is waste of time to try** to get such fine mixing with a **big spoon and an old pan,** as Quaker Oats, Limited, can get with their special milling machinery.

The Ful-O-Pep Mash is ready for use and only needs tipping out of the bag into a low dish. A Ful-O-Pep All-age Self-feeder is **not** necessary, but saves waste of food. Ask your corn dealer for the special cut price.

Save time and loss by reading the chapter on chick raising in the Ful-O-Pep Monthly Guide sent FREE and postage paid. The Guide has illustration and full details of the All-age Self-feeder.

FUL-O-PEP
GROWING MASH

NO MIXING : NO HEATING WATER : NO TROUBLE

Guaranteed by QUAKER OATS, Ltd., 11, Finsbury Sq., E.C.2

PULLETS.

FOR SALE.

Rhode Islands, White Wyandottes, White Leghorns, from 8s. 6d.; 1922 hens, 7s. 6d., carriage paid; approval. Sittings from 6s. Full particular, apply—Allan S. Varney, Poultry Farm, Gt. Holland, Clacton-on-Sea.

February, 1923, hatched. White Leghorns, 10s. 6d.; Light Sussex, Croad Langshans, Frizzles, 12s. 6d.—Fosbery, Blacknest, Brimpton, Berks.

Twelve W. Leghorn Pullets (Barron-Cook); 8s. each, sacrifice.—Dearden, Brookfield, Soham.

Hobson's first prize Utility Black Minorcas, Laying Pullets, Cockerels, Eggs.—Hobson, Wrentnall House, Pulberbatch, Shrewsbury.

We have commenced booking orders for early Pullets, from three months. In view of many disappointments last year, it is advisable to book as early as possible.—Particulars, Purley Poultry Farm, Old Lodge Lane, Purley, Surrey.

SEX-LINKED DAY-OLD PULLETS.

R.I.R. x Columbian Wyandottes; 25s. doz. Eggs, 7s. 6d. per 15. Gold Medal Blood both sides. Catalogue free.—L. H. Wace, Kingsland P.F., Bridport.

MAJOR ROBERT LETHBRIDGE, BROOMHILL, TIVERTON,

Offers Pedigree Rhode Islands Red, 1923 Pullets; splendid layers, by 302, 284, 291 egg males; 8s. each; to make room for 1924 stock. Orders booked for three months old pedigree Pullets. Delivery April onwards.

BLACK BRESSE.

Important French strain. Sittings, 15s.; Chicks double.—Woodhams and Herman, Kilcot, Newent.

WHITE LEGHORNS (PADMAN)

February-March, 1923, from dams 180-250; sires from 250 dams for five generations. All L2 grand birds; full lay; 10s.—Commander Tippet, Goring Heath Pedigree Poultry Farm, Oxon.

COCKS AND COCKERELS.

FOR SALE.

Black Leghorns. No Foot and Mouth Disease. Fine stock; Newman formula; full range subsoil, lime.—Finegan, Moatlands, Navan.

Pure Croad Langshan Cockerels, 10s. each.—G. H. Bryant, Spaxton. Bridgwater. Somerset.

Pure R.I. Red Cockerels, 8s. 6d. each.—G. H. Bryant, Spaxton, Bridgwater. Somerset.

La Bresse Cockerels. Right Birds for Breeding Pens. — Particulars, Purley Poultry Farm, Old Lodge Lane, Purley, Surrey.

MAJOR ROBERT LETHBRIDGE, BROOMHILL, TIVERTON,

Offers Magnificent Rhode Island Red 1923 Cockerels, from 285, 280, 260, 242 egg hens; £1 1s.; to make room for 1924 stock.

100 STOCK COCKERELS.

Over 300 acres free range. R.I.R. (Mrs. Beales), March hatched, from L2 hens; sire's dam, 160 in 6 winter months; pullet year 280; 20s. each., £5 for 6. White Leghorns (William Cook's), March hatched, from 260-296; 15s. each., £4 for 6. All true to type and colour, offered at half their value; carriage paid, crates free. Satisfaction guaranteed. — W. Firmin-Bear, S.P.B.A., Acton, Sudbury, Suffolk.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, March 26th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

VACCINES, SERUMS, AND OTHER THINGS.

We have received the following letter from a correspondent in reference to an article on "Chick Mortality," which appeared in the issue of March 12th:—

"For the first time since regularly reading 'Eggs,' now several years, I am this week unable to follow your line of reasoning, and think you are profoundly mistaken in condemning vaccines and serums as means of fighting disease. Until the arrival of the Millenium, the fundamental causes of disease will always remain, and, in the meantime, it has been shown without doubt that diseases can be controlled by vaccination and inoculation. for every subject that is 'proofed' by these operations, so is the spread of disease checked.

"You, I believe, would wish to take the short cut to immunity, and preach only, 'Breed from the fittest.' To that you can only add, 'and so say all of us,' but what chance is there of that practice being strictly and universally adopted? Absolutely none.

"Just so long as diseases exist will the most careful breeder and manager be as open to infection among his stock as the man who says nothing about these things.

"In vulgar parlance, 'I have had some.' Constitutional vigour does not spell Immunity—in fact, I should not be surprised if the immunes are not to be found largely among disease-ridden stock, they have been accidentally inoculated.

"For an Association which includes the word 'Scientific' in its title the policy should be, to search for and encourage the use of reliable vaccines and serums, so that they may become as cheap and as easy to administer as a pill. I have only adult stock in mind. It is too late when disease appears among chicks, and it surprises me that you should quote ailments peculiar to chicks, and largely preventible by the use of common-sense, as an argument against vaccines.

"I may add, since the matter of disinterested letters has popped up again, that I have no interest financially in any preparations whatsoever, and with your permission will sign myself IRAN."

In reference to the concluding paragraph of this letter, we would be permitted to point out that the subject-matter of the article to which the writer refers was "Chick Mortality," and it was not used as an argument against Vaccines, Serums, and Drugs, but the opportunity was taken to explain the position of "Eggs" towards its advertisers, in reply to a letter from Mr. MacLaren, which dealt with an article on "Immunity," in which we had expressed lack of faith in these things as a means of combating disease. If to say that we have no faith in vaccines, serums and drugs as a means of combating disease, is to condemn them, then we must plead guilty to having done so. Obviously, "until the Millenium comes, the fundamental causes of disease will remain." The problem before us is, what are the fundamental causes? Are they the Baccillii, etc., which the writer of the above letter implies, or the environmental conditions in which they flourish? or are they the increased susceptibility of the stock to their attack, because of mistaken methods of breeding, incubation, brooding, etc., which has impaired its vitality?

Does "Iran" refer to poultry when he stated "that it has been shown without doubt that disease can be controlled by vaccination and inoculation" or to humans? because, if to the latter, it would not for many reasons be a sound argument for their employment with fowls, and if the former, we must beg leave to differ, as in one case of Avian Diphtheria, where this means was used to secure immunity, it proved an utter failure, so much so that within twelve days of inoculation the disease was rampant in a flock of 200 Leghorns, which had previously shown no indications of it. It is not for a moment suggested that inoculation in this case was the cause of the outbreak; it is only mentioned to show that it did not prevent it—that it failed in its purpose. It is not correct to say that we wish to take the short cut to immunity, and preach only "breed from the fittest." That is only part of the programme, the important part is a fuller investigation of our system of incubation and brooding, and, incidentally, housing. And, again, it was never suggested that "Constitutional vigour did spell Immunity," but Iran will surely not dispute that it does mean greater powers of resistance; neither can it be admitted that the most careful breeder and manager is as open to infection among his stock "as the man who cares nothing about these things." Such a statement requires considerable qualification. Such diseases as B.W.D. and Coccidiosis may confer immunity on those birds which have recovered from them, but it does not render the chicks bred from such birds being infected with the disease when hatched, and when we suggested breeding for immunity, it was certainly not on the lines which our correspondent appears to believe.

It is difficult to understand why the word "Scientific" in the title of the S.P.B.A. should in any way commit it to the policy of *searching* for and encouraging the use of *reliable* vaccines and serums. Perhaps our correspondent did not intend this, so we will not press that point, but suggest that the word "Scientific" being interpreted as organised commonsense, the policy of the Association should be—first, to attack the root causes of disease, secondly to discover whether the use of vaccines and serums has proved more reliable than other methods of preventing and curing roup and allied diseases which have been practised during the last five and twenty years. We have had dozens of letters testifying to the value of the Spongia treatment for roup, and very few indeed which have been favourable to the vaccine treatment. On the other hand, it is only fair to say that we have had a number of letters in which the writers state that neither method has proved effective. In our view the simpler and more scientific method of tackling the problem is to deal with what are acknowledged to be the main causes of the lowered vitality of our stock, and its lessened powers of resistance to disease. When the research workers have discovered the reliable vaccines and serums, and have demonstrated their value to the practical breeder, it will be up to the Association to encourage their use. At present it is up to us not to neglect common-sense methods in the field, in the hope that salvation is to be found in the laboratory.

FIRST-CROSS LAYING TEST.—IMPORTANT.

In our issue of March 12th we made an error in respect of the above test, for which we apologise to Mr. J. N. Leigh, and to our readers.

The test has been divided into four sections, viz.:—

White Leghorns X White Wyandottes.
Black Leghorns X R.I. Reds.
Any other first-cross; any cross showing sex-linked inheritance.

We added:—"There will be possibly some surprise, that the male in the two first crosses should be of the heavy breeds."

In explanation we may say that we have always understood X to mean "Fertilised by," hence the mistake.

Mr. Leigh has asked us to correct this and say the crosses can be made either way.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick Sussex.

S.P.B.A. COUNCIL MEETING.

The monthly meeting of the Council was held at the Memorial Hall, Farringdon Street, on Wednesday, March 12th, the President, Mr. Kitson, being in the chair. There were also present:—Mrs. Hunter, Miss Maddison, Major Eden, Messrs. J. Smart, P. Hedworth Foulkes, A. Harold Paine, Bostock Smith, E. J. Meekings, Lester Spurgeon, J. H. Dowden, and F. W. Wait, and the Secretary.

SECRETARY'S REPORT.—The Secretary reported that 170 new members had been elected during the month of February. He read a letter from the Secretary of the National Utility Poultry Society, which conveyed to the Council of the S.P.B.A. an expression of appreciation for the broadminded way in which it had acted in postponing its Scheme for Inspection and Registration of Poultry Farms, at the request of the representatives of the N.U.P.S. and Poultry Club.

TREASURER'S REPORT.—The Treasurer's report was read in his absence, declared satisfactory, and adopted unanimously.

"EGGS" COMMITTEE.—The Chairman of the "Eggs" Committee, Mr. J. G. Kitson, again congratulated the members of the Council on the satisfactory financial report, and informed them that the circulation was now over 11,000 copies weekly. The progress was most gratifying to them all.

FOODS COMMITTEE.—The President announced that a meeting of the Foods Committee had been held previous to the Council meeting, and a definite course had been decided upon. Further investigations will have to be made, and the committee will meet again before the next meeting of the Council and would report on its proposals.

Mr. Meekings moved a resolution to the effect that the Council should take steps to carry out further experimental work. This was seconded by Mr. Foulkes, and supported by Mr. Wait. After a long discussion Mr. Foulkes moved "that a committee be appointed to investigate," and this was agreed to, the following being elected as members of the committee:—Mrs. Hunter, Messrs. E. J. Meekings, P. Hedworth Foulkes, Lester Spurgeon, and J. H. Dowden.

It was agreed that the Secretary should act as a representative of the S.P.B.A. at the World's Poultry Congress, to be held at Barcelona in May.

The date of the next meeting of the Council was fixed for Wednesday, April 2nd.

The following letter has been received from Mr. William Rice, Hon. Secretary of the Poultry Club, in reference to the scheme for the Inspection and Registration of Poultry Farms:—

"Dear Mr. Newman,—At the meeting of the Council, held yesterday, it was passed unanimously that a letter of appreciation be sent to the S.P.B.A. It was felt that your Society had acted in a public-spirited manner, worthy of the great poultry industry, we all so wish to help.—Yours truly, WILLIAM RICE."

THE BRITISH BARNEVELDER CLUB YEAR BOOK.

I have received from the Secretary, Capt. E. D. Brodie, Morgans Green, The Haven, Horsham, Sussex, a copy of the Club Year Book for 1924.

Mrs. Walker, the President, in her foreword, is able to congratulate the Club on the wonderful progress made during the past year, a progress which will compare with any other Specialist Club. This will be exceedingly gratifying to members, and perhaps we may also be permitted to add our congratulations, for all of us wish good luck to a new breed, which may play a big part in the future of the industry.

I note the President's warning to save, what in her own opinion, has made the breed—i.e., Big brown egg. "Lose colour and the size of egg or the numbers, then good-bye to the Barnevelder's well-deserved popularity."

These are wise words. The breeder of the Barnevelder has a very stiff task before him in his attempt to preserve both size, colour and numbers of eggs, but it is not an impossible one, and the keen breeder will find that it will considerably add to his interest if he can maintain these three outstanding assets. It will mean clever breeding, but if only the Barnevelder can make a better show in the Laying Tests, which is a matter of time, and preserve these three outstanding features, then the future of the breed will indeed be a very fine one.

Some few weeks ago a reader wrote to say that he had greater difficulty in hatching Barnevelder eggs than those of any other breed he has ever experienced, and I take this to be, in a great measure, due to the texture of the shell. We all know that the brown egg, as a rule, is a little more difficult to hatch in an incubator than the white ones, and we are also aware that this is due to the texture of the shell. Of course, this breeder's experience may be only an isolated one, and I do not wish to attach undue importance to what he has said, and only mention it here as a matter of interest. Possibly a little more moisture in the incubator would have meant easier hatching. Would any of our readers let me know their experience?

There are several good illustrations in the Year Book and some interesting articles, and a very excellent drawing, by Miss Laidlay, of representative Barnevelder feathers.

The club has now a total of 131 members, and is in a healthy financial condition.

The Year Book may be obtained from the Secretary at 1s. 6d. post free.

DUCKS *v.* HENS.

In his most interesting article in this week's issue, Mr. A. Harold Paine makes comparisons between hens and ducks, which are not altogether favourable to the former, and the records which he publishes would certainly tend to show that the duck is much the better, but there are one or two points which are not quite clear. Are any large flock averages of ducks obtainable, or has there been any attempt to keep ducks in large flocks of, say, 400?

Those which we saw in the big duck farms in Holland were all in comparatively small pens of, say, about 40 to each pen, and, of course, the conditions under which they were kept would be altogether impossible here. Their flock average was 140 eggs, and the cost of feeding was remarkably low, as it consisted of nothing but fish and maize, the fish being obtained from the canals, at no cost whatever, except that of catching it, and as it was fed to the ducks in its raw state—we might almost say, in its live state—it will be seen that the cost of production was comparatively small.

Further, can Mr. Paine tell us what is the average cost of feeding a duck per week where no food can be obtained from natural sources, as is the case on our commercial egg farms?

I think there are large numbers of our readers who would be pleased to have some information on this score, and, further, on the question of hatching ducks' eggs in incubators. Is the percentage hatched, on the whole, as good as it is with hens' eggs? Because I have received so many complaints of complete failures with ducks' eggs.

DUST AND THE RESPIRATORY ORGANS.

I have received the following letter from one of our readers:—

> "I wish you would advise me on the following: I have a pen of 225 White Leghorns (hens) which six weeks ago developed what appeared to be colds, I treated them, as often advised in "Eggs," without any real success, eventually trying Yadil, spending several pounds on this antiseptic without making things any better. I afterwards noticed that the birds appeared to sneeze and cough, the most at perching time, and chancing to go into a house to inspect, I noticed the Izal powder which was sprinkled on the dropping boards every morning, flying up in a cloud as the birds flew up on to the perches. The birds around immediately started a bout of sneezing. If I am right in assuming that the birds are suffering from catarrh as a result of inhaling this powder, what is my best treatment? There have been no signs of closed eyes, or roupy tendency, the birds being in very good condition, and producing well, and at night, except a chance of sneeze occasionally, there is no signs of anything being wrong, apart from the very damp nostrils.

I have no doubt that the dust raised by the birds flying on to the perch at night caused these conditions. Two years ago, when there was a discussion on Roup at the Harper-Adams' College, someone described similar symptoms, and this was discovered to be due to the use of Peat Moss Litter. The dust rises from scratching in this, and this had caused the trouble. On more than one occasion this has occurred with young chicks when bedded on peat moss litter **alone,** and that is why I do not care to recommend it as the sole bedding for chicks. As to treatment as asked for by the writer, I do not think anything can be done. If the cause is removed the birds would get right themselves.

SEX-LINKED INHERITANCE.
LIGHT SUSSEX X MARSH DAISY.

I have received a letter from Mr. F. J. Hemelryk, Vice-President of the Marsh-Daisy Club, in which he reminds me that he told me at Olympia that the mating of these males with Light Sussex hens resulted in chicks, the sex of which can be determined on the day of hatching. This has been tested by Dr. Crewe, and found correct. Mr. Mr. Hemelryk claims that the results of this cross gives a much better all round bird than the Brown Leghorn x Light Sussex, of a vastly superior type for table purposes. I am afraid there are few people who know about the Marsh-Daisy and its economic qualities, but I must try and get some information out of Mr. Hemelryk, and publish in an early issue. Of course, I expect to get a letter in a day or two from those who would prefer the Brown Leghorn cross. One of the troubles in this life for a weary Editor is that most of his readers think that their breed is the "one and only," and any little slips he may make result in a stern reproof.

EGG EATING.

Numerous complaints have been received with regard to egg-eating, and everyone is wanting to know some means of putting a stop to it. In my time I have tried all the old remedies which are supposed to be effective. I have filled eggs with mustard and cayenne pepper, with ammonia and paraffin, have been to the confectioners and obtained all the egg-shells, and allowed the hens to glut themselves on these, have put eggs in dishes of paraffin, which someone said was always successful; but in my own case, and that of others, it has failed entirely, and I have never found any of these remedies really effective.

The best result I have ever obtained, and although I do not say it has never failed, it, at least, has proved successful in a great number of cases, is to nail a piece of dark cloth across the front of the nest, slit this up the middle so that the bird can easily find her way in and out without seeing the egg, and in the neighbourhood of the nest boxes put down some china eggs; then file down the bird's beak until it begins to look a little pink, but does not bleed. She generally then has a good look at the china eggs, and I really think this is the most effective cure I have found for egg-eating.

Modern Poultry Feeding.

By TOM NEWMAN.

EPSOM SALTS AS A SUBSTITUTE FOR GREEN FOOD.

It must be quite five years ago that an article appeared in "Eggs," suggesting the idea that Epsom Salts might with advantage be used for laying stock in place of green food during the winter months. If my memory serves me right, it recorded the results of some successful experiments which had been carried out in this direction in America, a certain quantity of Epsom salts being given in the drinking water once a week. I remember talking this over with Dr. Kaupp when he was here, and suggesting to him that a better plan would be to add one per cent. of the crystals to the mash, and with this suggestion he was inclined to agree, as it would be more certain, and there was less chance of the birds getting an excess at any time.

One cannot say that the above-mentioned experiment was by any means conclusive, and I had almost forgotten about, when one of our members kindly sent me a copy of the "Canadian Poultry Review," from which I take the following:—

> GREEN FOOD FOR LAYING HENS.
>
> "The experience in the feeding of green foods to laying hens at the Cape Rouge P.Q. Station is a little out of the usual. Climate may have some influence here; we suspect it has. The manager in his report says:—'Green feed of some kind has for a long time been considered necessary for laying hens, and with the newer knowledge of nutrition, its good effects were ascribed to the vitamins it contains. However, experiments conducted at this station during five seasons, from 1916 to 1921, showed that, contrary to expectations, the lots receiving no succulent food but dry clover leaves gained more weight and produced more eggs per dozen during the four winter months, November to February inclusive. Now comes this new experiment which shows—though it is only for a season—that Epsom salts turned out better than even clover hay, roots or sprouted oats. From the latter case it would seem that part of the good results obtained by the use of green feed is due to its laxative effect. Still, it is better to be on the safe side, and to give Epsom salts in the drinking water at least once a month while also giving the usual green feed.'"

The test was made on four pens of 20 pullets each. In addition to the basal ration, one pen was given 78 lbs. of sprouted oats, the second 119 lbs. mangolds, the third 103 lbs. of dry clover leaves, and the fourth 27 lbs. of Epsom salts. In addition every pen received 100 lbs. of skim milk.

Now for results. The total gain in weight during the experiments of the respective pens was: 24 lbs., 23 lbs., 21 lbs., 14 lbs.

Eggs Laid.—Pen 1, 361; Pen 2, 284; Pen 3, 338; Pen 4, 388.

It is obvious that one must not attach too much importance to this test. There is really no evidence that the Epsom salts were absolutely necessary; the suggestion that the good effects of green food were with the newer knowledge of nutrition "ascribed to the vitamins" is hardly correct. Indeed, one may say it is almost entirely erroneous, for every student of nutrition is aware that the chief value of the green foods lies in their high mineral content; and we shall notice here that every pen was given skimmed milk, while all the meals are fairly well off as regards their salt content, including the magnesium salts. They are all more or less deficient in lime salts in which the milk is well supplied. The only sound reason for feeding such an expensive food as clover or alfalfa is that they have a high content of lime salts, and these we can now supply in a much more economical form. I think one may safely say that the Epsom salts themselves had very little to do with the better egg production of this pen; and if we had a full account of the rations fed it is just possible that we might be able to trace it to something else. At any rate I should not worry a great deal about green food if I could always supply skim milk to my birds, for, except in this respect, the grains and meals would, I suspect, supply all the mineral salts the birds required. It will be remembered that in the first Wellingham experiments the birds which attained such wonderful size and were in such splendid health for the first five months of their lives were kept in a covered run on peat moss litter, and that green food and grit were entirely eliminated from their ration.

FISH MEAL.—A correspondent reminds me that in the recent account of the various foods and meals in these columns, I entirely omitted to mention fish meal. That was an oversight, and I thank him for reminding me.

We owe the introduction of fish meal to the Norwegian Government, who, some thirty years ago, carried out some experiments to determine whether fish residues made into a meal could be utilised for feeding animals. These proved successful, and led to the use of fish meal on the continent on a large scale. The first time I remember to have heard of its use was at Trondjeim, when I was there in 1906. Then it was being used for cattle. It was the demand from the continent which led to factories being erected at Hull, Grimsby, and Aberdeen. There are two distinct meals: (1) White Fish Meal, which is supposed to be made solely from the flesh and bones of white fish; this is made from those parts of white fish which are unfitted for human food. The fish are gutted at sea, the livers are packed in barrels, and the entrails thrown into the sea. At the ports the fish are filleted. The heads and bones with a good deal of the attached fish are removed, and it is from this that the meal is made. A good analysis of White fish meal is:—

> Protein, 55.60 per cent.; Lime Phosphate, 18.25; Oil, 2.5; Other Minerals (including salt), 3.5; Carbohydrates, fibre, etc., 1.3. Neither the salt nor the oil content should exceed 4 per cent. in a good sample.

(2) RED FISH MEAL.—This is generally made from herrings, but there is no doubt that a good deal which comes in this category is just the refuse of the markets. As the herring meal contains as much as 10—20 per cent. of fat or oil, the first process in the manufacture is to get rid of the bulk of this; this is done by hydraulic pressure or by benzene. The analysis of this is very variable, and it often contains an excess of oil, which gives a fishy taste to eggs; this will not occur with white fish meal. Herring meal is much darker in colour than the white fish meal, and may vary from a dirty yellow to a dark brown. It is always risky to buy this without a guaranteed analysis, as it is the salt and oil content which are most variable, and there have been very many cases of salt poisoning from this cause. I have never known white fish meal to taint an egg, even when used up to 25 per cent. of the mash; but this has often occurred with red fish meal. As far as the vitamins are concerned, they are not present in either the red or the white meal. Our experimental work has proved fairly conclusively that for years an excessive amount of fish meal has been used especially on the commercial egg farms. This is so much waste, and has no doubt been injurious, as it has undoubtedly caused kidney trouble. One indication of this is the dark tipped combs, and the state of the excreta. These symptoms were not at all uncommon on the commercial egg farms a few years ago, and to "Eggs" and the S.P.B.A. belong the credit of drawing attention to it, and so saving incalculable waste. One may say that, with properly balanced rations, the content of fish meal need not exceed 5 or 6 per cent. of the total ration to give the best results.

THE WHITE DIARRHOEA TEST.

(From "The American Poultry Advocate.")

In the "Journal" last month was an article on bacillary white diarrhoea in young chicks. The article contained the intelligence that this is a contagious disease, that it may be transmitted directly through the egg to the chick that hatches out of that egg, and that it can be stamped out of a flock by subjecting the hens that lay the eggs to a blood test by which their infection with the disease, or freedom from infection, may be determined.

A great deal of testing of breeding stock has been done in the State of Massachusetts. Prominent breeders, such as Mr. M. F. Delano and Mr. Arthur H. Shaw, breed only from tested birds. The Massachusetts Agricultural College has done a great deal of good in the disease control work.

We have heard several astonishing reports of disease-ridden flocks that have been cleaned up by the test of all stock used for breeding. The benefits of the test are so generally appreciated in New England that a large number of people make purchases of eggs for hatching and chicks only from owners of tested flocks.

Prof. J. C. Graham has kindly furnished us two tabulated reports of two flocks. We print these tables below. The first column indicates the year. The third column the number of chicks raised. The last two columns show the number of breeding hens tested and the number of reactors:.

Mr. A.'s Flock:—

Year.	Hatched	Raised	Tested.	Reacted
1918	3000	800		
1919	3000	850		
1920	3500	1300	499	137
1921	4000	3300	588	117
1922	4000	3500	1139	73
1923	5000	4300	1110	3
1924			2026	0

Mr. B.'s Flock:—

Year.	Hatched	Raised	Tested.	Reacted
1920			251	18
1921	6000	1500	00	0
1922	5000	3330	1819	612
1923	2782	2039	558	13
1924			286	0

A careful study of the above figures will prove illuminating to the serious-minded poultryman. They reveal the difference between success and failure. We thank Prof. Graham for his kindness in having furnished them for publication in these columns.

In sending the tabulated data on the results of testing, Prof. J. C. Graham, head of the poultry work at the Massachusetts College of Agriculture, wrote:—

"Regarding the flock of Mr. A.: Note the improvement for the year 1921 following the first test and also the improvement following. The same thing is true of the flock of Mr. B. I wish to call your attention to the fact that Mr. B.'s flock was not very badly infected in 1920, but he did not follow up the test, nor did he attempt to breed from only tested stock. You will see from this how badly his flock became infected in 1922, having about one-third of them reacting.

"You may ask why it took from two to four years to clean up these flocks. That is because of a great variation in the way flocks are handled; the period of the year in which tests are made, etc. It also depends entirely upon whether a man tests all his breeding birds the first year, or whether he tests following the hatching season or before. In fact, this is rather a complicated proposition, and can hardly be explained in a short letter. However, these two cases are typical of what can be done when the poultryman co-operates to the fullest extent with the college in the elimination of disease.

"You ask how prevalent the disease is. So far as our work goes here, it is fairly well distributed throughout the State, and from what has been done in the neighbouring ones, I think the same can be said of them. I do not wish it to be understood that 90 per cent. of the flocks in New England are infected with bacillary white diarrhoea. You must bear in mind that there are probably a great many flocks not infected. It is natural for one to suppose that those who have called on the college to assist in eliminating this disease are those who are having a very high death rate among chicks. The time is very near at hand when there will be fully 100,000 breeding birds in the State that are free from bacillary white diarrhoea. In fact, we think by the end of this year there will be one hundred or more such flocks.

"Do not forget there are other place besides New England. So far as I know, the first case of bacillary white diarrhoea was discovered in Indiana, and chicks infected with this disease have come in from west and south of us. Therefore, we know there is considerable infection outside of New England.

"I wish to add that Mr. B. stated that some of his losses the past two or three years have been due to rats. You will be interested to know that Mr. B.'s flock is of high standard quality. Mr. A.'s flock would correspond fairly well with our experimental flock, although somewhat better coloured at the present time."

Notes on Utility Ducks.

By A. HAROLD PAINE.

There are probably many readers who are desirous of taking up duck breeding, either solely or in addition to poultry, who are unacquainted with the comparative costs of the one branch with the other, and it is to that subject that I am devoting my notes this week. For the purpose of comparison I am suggesting a unit of ten birds—a cockerel and nine hens of a heavy breed and two drakes and eight ducks of one of the well-known utility varieties. Taking the birds first, we will assume that the cost in either case is round about £10. A first-class poultry house—by "first-class" I mean one that with ordinary care and attention should be good for some twenty years or more—would probably cost from £13 to £15, so I will average it at £14. For the construction of the pen, if ample space is available, one say 25 yards by 25 yards would take two rolls of 6 ft. wire netting at 25s. per roll and about 40 stakes at 1s. each. Extra appliances, such as a dry mash hopper, water fountain, and feeding trough, would work out to about 30s., giving a total cost of £30.

Coming to the ducks we find that a properly constructed house of equal value and durability would probably cost about £8, and the wire netting and stakes about 50s., as the netting need only be 3 ft. high. Drinking pan and bathing ditto of first quality should be purchasable at 10s., giving us, with the birds, a total of £21. So we see that under equal conditions the first cost of duck-keeping is much less than that of hens. Now we come to the question whether ducks need such elaborate or expensive houses as poultry. I have kept them under very varying conditions, and I think we may take it that they do not. Of course, for special purposes, such as trap-nesting and recording, etc., it is just as well to have everything of the best, but if the ducks have such shelter provided that they can sleep on a dry floor, other factors are not so important; and if even such shelter is not available then, given immunity from foxes, etc., nothing more need be provided than a wired enclosure protected with a few hurdles which might be erected at a cost we will say of £2 to £3. So duck-keeping can be commenced at a cost of £13, as compared with £30 for the poultry.

There is another factor to be taken into consideration, and a very important one, too. It is the replacement of stock. We are told that it is advisable to dispense with our pullets, or hens rather, when they are two years old, and that matured *cockerels* should be used in the breeding pen. I admit that one of our foremost breeders, in lecturing, recently said that he ran his hens for at least four years and found them very valuable up to that age. It is a matter on which I offer no opinion myself, as, although I have as many hundreds of hens and pullets as I have ducks, these notes are confined to the utility duck alone. We may take it as unquestionable that the hen lays fewer eggs in her second and third year than in her first, and that her greatest general value is in her first year. It it not necessarily so with ducks. They sometimes lay more eggs in their second year than in their first, and they are certainly valuable as layers up to their fifth and sixth year; consequently there is no need for such frequent replacement of these, nor of the male bird. The latter is very often as fit and as valuable in his fifth year as in his first, and there are birds which have been used in the pen up to their tenth year without loss of vigour and stamina.

I hope in my next week's notes to deal with comparative egg production and later the comparative costs of feeding.

Moisture as applied to Hatching in Incubators.

By C. E. B. PHILCOX.

I propose, by your Editor's permission, to give the readers of "Eggs" a few of my practical experiences of running incubators—an experience which extends over nearly thirty years.

In the first place a word of warning: I do not want novices to run away with the idea that they are the people to test out these "tips." They must be worked by practical and experienced men, or failure will result. There is no reason, however, why a novice should not study what I have to say, and "try out" these things when he has *become thoroughly accustomed to the working of the machines.*

Incubators must be run by people who have the fullest confidence (only gained by experience) in what they do. When I was a lad of sixteen my brother and I bought a hot-water incubator, and started to try and hatch out ducklings for fattening. Our experience was not very encouraging—100 eggs put in, 90 per cent. fertile and no ducklings—*all dead-in-shell.* In a day or two we two lads were "dismal Jimmies" of the first order. However, we were not going to be beaten, and my brother, who was an ingenious fellow, suggested "dipping" all the next "clutch" every day from the 10th day to hatching time. We bought 100 Aylesbury-Pekin eggs, worked the machine at 102½ Fahr. and "dipped" the eggs into a basin of warm water heated to about 90 degrees every day at cooling time—i.e., evening. We awaited results with some anxiety. On the 26th day three or four were right out and a whole host of others "pipped." By the time we cleared up we had 81 jolly fine ducklings. My brother told me afterwards that he got the idea of "dipping" the duck eggs from a woman who bred a large number of ducks in the Aylesbury district. She told him that she always dipped her duck eggs when her broodies ran off to feed—as she hatched with hens. I cite this case with ducklings, as I think it has a distinct bearing on the moisture problem, and is, in fact, *a message from Nature.*

A sitting duck will not go for a dust bath like a broody hen, but dash off to the nearest pond, have a dip, and return in a very moist state to brood the eggs.

Now with regard to hens' eggs. We appear to have to consider a much more tricky problem. When incubating in a machine we have, I contend, to keep the closest observation on the atmospheric conditions prevailing outside the incubator house. I always keep a good weather glass handy as well as a thermometer, and am always very keen to *watch for wind.* I will give my experiences with Gloucester hot-air machines during the last two seasons and the beginning of this.

In this part of England in 1922 and 1923 we had very humid atmospheres prevailing with considerable rain, no frost, and no cold winds from north or east to contend with. My hatches were as follows (strictly following the maker's instructions as to use of felts and water trays):—1st hatch, 1922, 160 eggs; 133 hatched, 18 infertile, 9 dead-in-shell. These were White Leghorns, set in March 2nd, hatched in April:—160 eggs set, 128 hatched, 19 infertiles, 13 dead-in-shell; weather much warmer and dryer. 1923, 1st hatch, 150 R.I. Reds, set February 5th in fairly mild weather, with rather sharp frosts and cold north-easters two days later, which have continued with sharp frosts right up to now. Snow also fell during this incubation. Directly the cold dry winds set in I filled the moisture trays and stood a basin of warm water under the machine for a few hours each morning. Test on 7th day revealed eggs going well, only 12 infertiles being thrown out, with 4 addled, leaving 134 in the machine. Tested further, on the 14th day, showed 2 addled, rest going on all right. On the 21st day the morning showed none even pipped, and I thought I was in for it with a vengeance; but at night there was much "squeaking" going on, and I left them that night hoping to see some out next morn. When I came down and visited the incubator house I was taken back to see that none were out and two only pipped. I thought, "Desperate needs inspire desperate deeds," and procured a large pan, filled it with water, heated to about 90 degrees Fahr., and I bundled the whole lot into it, taking care *not* to immerse the big end (air-dome) for more than a second for fear of drowning the chick. The result was about a dozen "pipped," whilst in the water with a report like a small pistol. I dipped the lot and replaced them quickly in the egg drawer and shut the machine up. I did not open it again that day, and next morning when I came down there were 122 fine sturdy chicks out and only 10 dead-in-shell. They are now over a fortnight old, and only four have succumbed to the rigours of a very severe spell through getting too far from the hover at night. This result leaves me with this firm opinion:—That to incubate successfully one must study the *outside weather* conditions, and be particularly careful when *harsh dry winds* prevail. I could feel, when dipping the eggs, that the chicks were very strong, as the whole shell seemed to quiver, if the hand was gently, but firmly, grasped round the egg. The shells had a very *hard, glossy appearance*, and that roused my suspicions of dryness.

I got the idea, of course, from having had experience with duck eggs, as stated earlier in this article. Is it possible that too dry an atmosphere early in a period of incubation sets up a sort of fermentation in the egg which causes the "burst yolks" and addled eggs one so often hears of? I will leave this to my scientific friends to deal with, but it seems to me that what we want to get at is *when to apply* extra moisture and *when to withhold it*, keeping a sharp eye the whole time on the barometer. I have, I'm afraid, made this article far too long, but if it saves others from loss and sets scientists thinking, I shall be amply rewarded. I've never had a similar experience with hen eggs; but I always "dipped" my ducks' eggs, with good results.

CLITHEROE LAYING TEST.

FOURTH MONTH'S RESULTS.

The fourth period of the Clitheroe and District Utility and Fanciers Poultry Society's Laying Test terminated on February 19. Although there has been no improvement in weather conditions, the egg production has steadily increased.

In the heavy breed section, 1,085 eggs were recorded, an average of 15 per bird for the month. Seventeen birds recorded 20 or over. Mr. T. Ramsbottom's pen of White Wyandottes, which have laid consistently throughout the test, still lead the way, and are undoubtedly in a strong position with only two months to go before the completion of the test. It is interesting to note that of the first twelve pens, four are Wyandottes, seven Rhode Island Reds, and one Light Sussex.

The light breeds have an average of 10.09, thirteen birds registering 20 or over. Several birds in this section have yet to record their first egg. This is probably the result of sending birds that have been in lay for some time before the commencement of the test. Intending competitors at future tests will do well to bear this in mind and attempt to strike the happy medium, which is an all-important factor. Miss Greenwood again takes premier position, 48 eggs, 30 of which are first-grade, having been recorded in her favour during the month, this being the best monthly record of any pen since the commencement of the test.

The health of the birds is excellent, one bird only being under treatment. The next visit to the test, which is being conducted at the Hollins Farm, Rimington, under the supervision of Mr. J. Stanworth, will be on Saturday, April 5th.

HEAVY BREED SECTION.

Pos.	Owner and Breed.	Total Eggs.	2nd Grade.	Points.
1.	T. Ramsbottom (W.W.)	133	67	368.6
2.	T. Holgate and Sons (W.W.) ...	116	91	291.1
3.	J. E. Ruthven (W.W.)	102	50	286.8
4.	R. O. Butterworth (R.I.R.) ...	104	54	274.4
5.	G. Broom (R.I.R.)	105	60	272.8
6.	T. Sweetman and Sons (R.I.R.)	108	85	265.9

LIGHT BREED SECTION.

Pos.	Owner and Breed.	Total Eggs.	2nd Grade.	Points.
1.	Miss Greenwood (W.L.)	116	67	301.5
2.	H. Harrison (B.L.)	114	71	294.6
3.	Crook and Dugdale (W.L.) ...	104	63	266.8
4.	J. Boothman (W.L.)	101	51	265.8
5.	T. Bickerstaffe (W.L.)	87	71	216.3
6	H. Petty (W.L.)	72	30	199.2

THE NORTH LANCASHIRE AND WESTMORELAND POULTRY FEDERATION

INTERNATIONAL EGG LAYING TEST, 1923-24.

Report of the Fourth Month, Jan. 8th to Feb. 4th, 1924.

MANAGER'S REPORT.

Production has improved in Sections 2 and 3, moulting in most of the pens in Section 1 being responsible for the drop in that section. The health of the birds has been good, taken generally. The Light Breeds in Section 3 have again been troublesome with slight colds, but they have yielded to treatment, and are now increasing in production. It is noticed that the birds affected are generally the rather under-sized, fine-boned style. Some very good individual scores have been put up during the month, and also good pen records. Two birds have died.

FLOCK AVERAGES.

Section 1	8.6 eggs per bird.
Section 2	12.0 eggs per bird.
Section 3	5.95 eggs per bird.

SUMMARY OF LEADING PENS.
SECTION. 1.

Pos.	Owner and Breed.	Eggs.
1.	W. Crabtree, Clitheroe (W.W.	690
2.	A. Snowden, Cross Hills (W.W.)	548
3.	C. W. Sterne, Cambridge (R.I.R.)	479
4.	L. Williams, Liss, Hants (W.W.)	446
5.	W. Crabtree, Clitheroe (W.L.)	414
6.	Withington, Millom (R.I.R.)	410

SECTION 2.—Five Pullets.

Pos.	Owner and Breed.	Eggs.
1.	B. Prior, Allen, Ulverstone (R.I.R.)	292
2.	J. Sutton, Hocle, Preston (W.L.)	304
3.	J. R. Cheesman, Kendal (W.W.)	288
4.	R. A. Hargreaves, Oldham (W.L.)	270
5.	R. Mason, Kirkby-Furness (W.L.	254
6.	J. M. Edmondson, Ox'Holm (W.W.)	262

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Wednesday, March 26th, 1924.

EGGS

THE OFFICIAL ORGAN OF THE SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

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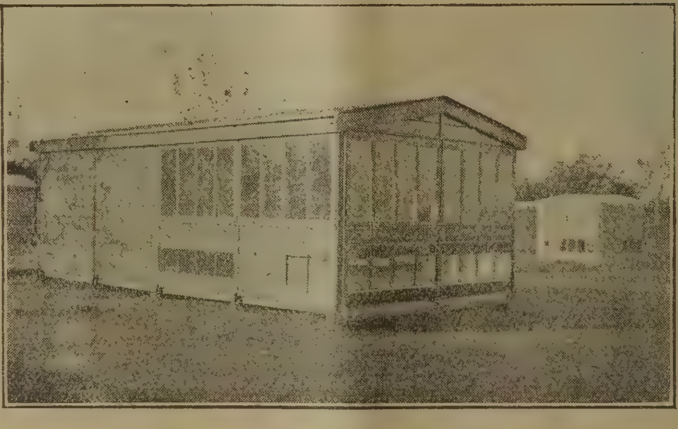
PROPER HOUSING vs. CHICK MORTALITY

"FAULTY VENTILATION and Housing causes 90 per cent of the deaths amongst young chicks."

This is a definite conclusion arrived at by an American Poultry Scientist, who has made a special study of the subject, performing many thousands of post-mortem examinations. In the course of an interesting article republished in the "National Poultry Journal" of 8th February, Professor E. C. Morris, of San Diego, states, in his outspoken American way, that the theory as to Coccidiosis and kindred diseases of chicks are "knocked into a cocked hat" by the facts. By means of scientific deductions he claims to prove that an overwhelming majority of the mortality amongst chicks is due to pneumonia, which in turn is produced by faulty ventilation, i.e., by insanitary and faulty housing conditions. To combat this state of affairs he recommends adherence to the modern principles of ventilation which are very generally accepted in all parts of the world.



Brooder House, convertible type, 20ft. x 10ft. Capacity, 500. Above house will take either one flock up to 500 chicks, or four flocks up to 150 chicks. Prices: £38 to £45. 40ft. by 10ft. £75 to £85.

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W. H. COLT, M.N.U.P.S., M.S.P.B.A., Bethersden, Kent.

SECTION 3.—Single Bird.

Pos.	Owner and Breed.	Eggs.
1.	N. Pickup, Church (W.W.)	73
2.	R. N. Cook, Tarleton (Buff R.)	70
3.	Australorps Farms, Ltd. (Australorps)	52
4.	J. Bowker, Carnforth (W.L.)	49
4.	W. Harrison, Morecambe (W.W.)	50
6.	W. E. Saul, Guildford (W.W.)	52

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

Mrs. J. R. R. (Berwick). The idea of greasing eggs with "hen oil" or any other oil is absurd. The shell of the egg is porous, to permit the intake of oxygen and the escape of the carbon-dioxide exhaled by the developing embryo. When you apply grease to the shell you close the pores, with the result that the chick gets none of the oxygen so necessary for healthy development, and is suffocated in the shell by the carbon-dioxide which cannot escape. There is nothing which you can apply to the shell which will in the least assist hatching, and you will see how opposed all these theorists are when I tell you that a few years ago an American was advising that all eggs should be washed before being incubated in order to remove the thin film of oil deposited by the hen, and someone else was selling a preparation of acetic acid. The action on the shell of the carbon-dioxide exhaled by the chick, in conjunction with moisture, is all that is necessary; the film of hen oil is not a "wise provision of nature," but is merely due to the egg coming into contact with the oily secretions of the feathers. Other people have had just the same experience as yourself from greasing eggs. Last year some innocent individual wrote an article in a contemporary, advising that eggs should be greased with margarine before being incubated, with the result that the Editor got scores of letters from these of simple faith, who followed that advice and never hatched a chick. (2) With regard to the dry mash for your hens and chicks. the clover in the former mash is quite unnecessary, as your birds have free range, and the inclusion of the laying meal is absurd. Make your mash of 2st. bran, 4 boxings, 2 maize meal, and 1 of fish or meat meal. This should be always before the birds as a dry mash, and the grain ration should be equal parts meat and good heavy oats. You should make an effort to get ground oats for the chicks, and you can get some of excellent quality without sending further South than Notts. (3) With regard to the chicks for the first week, keep them on a good brand of dry chick feed; only see that it does not contain split peas, millet, lentils or dari. Have a hopper of dry bran always before them, and give them skim milk to drink. On the sixth day put them on the following formula:—4 lbs. good broad bran, 6 boxings, 2 Sussex ground oats, 1 maize meal, 1 meat and bone meal. This should always be before the chicks after the sixth day, with the dry chick feed given in the scratching litter. As the chicks get older you must reduce the percentage of bran. The second dry mash you sent, containing as it did 25 per cent. fish meal, was ridiculous in the extreme, especially as your birds are on free range.

M. E. G. (Binsted). Chicks should be induced to perch at as early an age as possible. If the perches are properly constructed there will be no fear of crooked breasts, and the chicks will be much healthier, grow faster, and not be so susceptible to colds. Make the perches of plasterer's lathes, nailed ½ an inch apart, and 18 inches from the ground.

V. G. G. (Lymm). The soft-shelled eggs are due to the mash being too stimulating. It may have answered in the autumn, but it does not do when hens are producing eggs in large numbers in the natural laying season. Reduce the fish meal by a half part, increase the alfalfa to one part, and add another part ground oats.

Nemo (Stourbridge). The clover meal contains a certain amount of leaf, and is above the average of the samples received. As there will soon be an abundant supply of fresh green food, it will not be necessary to use so expensive a food as clover. (2) The meat and bone meal is not a good sample; there is a good deal of hair in it, and what appears to be some of the hide. The bran is very poor, and totally unsuited for a poultry food. The middlings contain a lot of ground over bran, and are not good enough. The ground oats are good.

G. N. D. (Nottingham). Please don't write in future with an indelible ink pencil on mauve paper. We are very busy people, and want all the assistance we can get in the way of legible writing to help us get through the day. The appearance of the single comb among your Wyandottes is not the result of crossing strains, but of the introduction of a male bird which is impure for rose-comb. What I mean is, that had the male from the other strain been pure for rose-comb, then there would have been no single combs in the progeny. (2) You should not breed from the progeny, as the great majority of them will carry the single-comb factor—that is, even those which are rose-combed will carry the single-comb factor. (3) If the eggs of this pullet, which has laid 126 eggs in 154 days, do not weigh on an average more than 1¾ ozs., then I would not keep her for the breeding pen—certainly not to breed cockerels from.

L. R. S. (Hertford). *Replies in these columns, particularly as regards feeding, very often apply to a particular case, and are not applicable to all; please remember this.* You did wrong in following the advice given to another reader some weeks ago, because your two cases are totally different. Omit the alfalfa meal from your mash, it was never necessary under your conditions, and replace with one part biscuit meal. I think you will soon see an improvement.

J. K. (Leicester). You do not say whether you are using your mash as a dry or wet one; but in any case it is not a good one. You will be well advised to increase the sharps to four parts and add one part alfalfa. It is a very great mistake to give a forcing mash at this time of the year, as no bird should need forcing in the flush season, and it often causes shell-less and thin-shelled eggs, and also prolapsus of the oviduct. You certainly must not put a breeding pen on a forcing mash in order to get eggs, because you will not get hatchable eggs if you do. Your best plan would be, if you wish to force them, to use the following formula:—6 lbs. middlings, 3 bran, 6 maize meal, 2 pea meal, and 4 meat meal. The grain feed should be cut down to a minimum in order to induce the birds to consume as much mash as possible. With your present mash I should use two parts kibbled maize, one wheat, and one oats.

W. V. (Ilkeston). You need not wait until the last chick is 48 hours old before you begin feeding. When the first are 48 hours old you can begin feeding the lot. As a rule the first chick hatched is the more robust, but it does not signify it has better qualities than the later hatched ones. Earlier hatching may occur from many causes, such as the actual position of the egg in the incubator and how it was affected by variations of the temperature in the different parts of the drawer. Give your birds the last feed about 6.30 at this time of the year. Chicks do not want water and grit in the first 48 hours, and the best thing is to keep them quiet and let them absorb the yolk of the egg from which they were hatched. With regard to the question of how much food you must give them, this is all a matter of observation. I cannot tell you in so many ounces; just let them have what they will peck at readily. It is quite common for pullets or hens to lay a small egg when they come to the end of a batch.

C. M. G. (Hertford). We regret we cannot reply to non-members through the post unless the fee of 2s. 6d. is paid as notified at the head of these columns.

Before I can help you I should like to know how you are feeding now. It is possible, if your birds have been neglected, as you suggest in your letter, that they are still suffering from this neglect. A good mash to feed (this is a dry mash and should be always before the birds) is:—2 lbs. bran, 4 middlings, 1 each maize meal and ground oats, and 1 of fish meal or meat and bone meal. In addition they should have half an ounce of grain in the litter as the first feed about an hour before the hoppers are open and 1½ ozs. as the last feed, also in the litter. Success on the intensive system depends a great deal on the litter being plentiful and dry, and also a good supply of fresh green food. You need not make any alterations in this mash for the birds kept extensively, although in the summer, if they have a good range, you might omit the fish meal or meat and bone meal, or at least reduce it by one half. If you only want to feed wheat in conjunction with this mash I would reduce the amount to 1½ ozs. per day. With regard to books, I should advise you to get C. A. Flatt's "Poultry-Keeping" and the "Poultry Manual," by the Rev. T. W. Sturgess; "Egg-in-Kums," by "Sonimor," published by the "Sonimor" Poultry Farm, Leckhampstead, Newbury, Berks. To disinfect the brooder after severe losses from coccidiosis, the best thing would be to thoroughly spray with a strong solution of Izal. I should prefer this to creosote, as it would be some time after the creosoting before you could use the brooder.

S. J. H. (Anniesland). Of the two samples of dry mash you send, that at 12s. is the better, and I would particularly recommend this as you say your hens are a little on the fat side. With regard to the hen which waddles about just like a duck. I expect this is a case of a broken down abdomen, and you can do nothing which will help her. This is not an uncommon trouble, and a hen may still continue to lay, but she would be of no good as a breeder. Many thanks for your kind appreciation of "Eggs."

"Hopeful" (Pinner). With regard to the samples you send. The bran is a fairly good one, the maize germ meal very good indeed, but 17s. 6d. is too high a price, and I would suggest you would do better to use maize meal. The clover is a poor sample, and at this season you should not want to use it at all as there should be plenty of green stuff available. The fish meal is good and good value at the price. The middlings are very moderate; hardly good enough to use. The ground oats are only fair, and at 19s. cwt. the price is too high. As you say, the clover meal contains a great deal of dust. Yes, your mash is all right, except that you are feeding too much fish meal, and half the quantity would be sufficient. Yes, equal parts maize and wheat would be a good grain feed for them. If you average between 80 and 90 eggs a day from 150 fowls you are only doing just fairly; you ought to be doing better than that at the present time; but, of course, as I have not seen the fowls and do not know what breeds or ages they all are, I cannot express a very definite opinion.

J. B. (Blacon). The thirds are really not good enough to use; they contain a lot of sharps, and the bran is only a very fair sample, very harsh and fibrous. With regard to your question as to my remarks that "the first 42 days of production of a pullet is the best criterion of her ability," and what number of eggs I should consider a good record for the first 42 days. If a pullet averages four eggs a week during that time I should consider her a really good bird. Below 20 I should hesitate to use her as a breeder, although she may prove a satisfactory layer, but below 10 I would not keep her even for laying. Of course, you will appreciate that there are individuals to which this would not always apply, but under normal conditions that is the plan which I adopt. I could not reply to your letter by post as you gave my address instead of your own.

H. K. L. (Boxhill). If you wish to use blood from the butchers the best means of doing so is to stir in as much middlings as possible, then bake it in the oven, and use 15 to 20 per cent. of the cake crumbled up in the mash, omitting, of course, the fish or meat meal. This is rather a troublesome thing to do, and I do not know of any other means which would prove effective.

"Grateful" (Malden). The sample of oats are very poor, and only suitable just for a scratch feed. If you feed them as a part of the ration it would be advisable to use three parts kibbled maize and one of the oats. Creosote mixed with flowers of sulphur for scally leg would be no more harmless than would oil and paraffin. What I suspect happened, when you used the latter mixture, and the birds died soon after, was that the paraffin touched the thigh, the consequence being that the birds died from the shock. Equal parts linseed oil and paraffin, if the legs are well painted with it, will answer as well as anything, but a 5 per cent. solution of Izal is equally effective and cleaner. You should be careful not to get anything you are using on to the flesh, as this was most likely to cause the death of the birds to which you refer.

"Four Gates" (Hebden Bridge). I think your Houdans have failed to lay for two reasons: one is, that they were hatched too late, they should have been hatched at least a month earlier, and the second is, that your feeding has been far more conducive to fat than to eggs, the percentage of Indian meal and ground oats being far too high. I suggest you try the following formula in its place:—2 lbs. bran, 4 middlings, 1 each maize meal and Sussex ground oats, 1 meat and bone meal. I very much suspect there is internal fat, and that your lack of experience does not enable you to detect this. It is no good your continually changing the feeding. Many strains of Houdans are not great layers, particularly in the winter, and you should hatch them in better time to get really good results. Your feeding was wrong from the first, and the best plan is to try and follow the formula I have given you and stick to it. More than two years ago we had articles in "Eggs" advocating the use of cod liver oil as a preventive of leg weakness. Thanks for your offer, but I had already seen the paper to which you refer. We were some months ahead of it in this case, but there is a great danger in attributing all forms of leg weakness to a deficiency of vitamins.

P. C. (West Bromwich). There is no reason why you should not be able to keep a hatch of chicks in the laying house if the floor was littered and the chicks were allowed to run on to a grass plot. What you must be careful of, however, is floor draughts, as these particularly cause an outbreak of pneumonia. I do not think the sheet zinc is likely to be harmful if made into drinking vessels.

POST-MORTEMS.

K. R. G. The chick had a dropsical yolk sac which distended the abdomen and interfered with digestion. The condition is due to a variety of causes, such as inherent weakness or want of constitution, over-heating during incubation, or too early feeding, and consequent arrest of absorption.

A. B. R. The duck had partaken of something which brought about the arrest of the heart's action, and the lungs were gorged with dark blood and clotted. Her condition was otherwise good.

Mrs. W. S. The hen was a mass of egg tumours, and had been ill for a long time.

R. F. T. No, not infection. The chick was suffocated by the pressure forward of a dropsical yolk sac, which occupied all the belly, and compressed the other organs so that no digestion was possible.

P. B., Notts. Infectious pneumonia, and demanding immediate attention. I should have replied by post if you had given your name, as well as a nom-de-plume. You cannot see this reply for nine days, as it is too late for the present week's issue of "Eggs."

L. W. R. There was an egg in its "skin," but not shell, lying free in the abdomen, where it had long been macerated. The kidneys showed excitement, which may well have been caused by the partially brûned wheat. The egg trouble was of longer standing.

M. T. Yes, pneumonia from chilling.

A. R. G. Pneumonia in both chicks. Yes, they were constitutionally feeble, and easy victims to the cold winds.

B. P. C. Embolism of great abdominal vessel, and chronic lung disease (epatisation). I should take this pullet to be one that had recovered from infantile infection, and developed a new crop. You did well to kill her.

C. D. of B. No, it was not a disease of the reproductive organs, as you supposed, but of the liver primarily, and this led to a dropsical condition, with jelly-like matter among the dropsical fluid, which literally drowned the heart, and thus caused her death. The degeneration of the liver was of the kind known as amyloid.

M.C.W. Lung poisoning from bad air or fumes, I should say, from the post-mortem appearances and absence of signs of any infectious disease of chicks.

Mrs. E. J. The White Leghorn had bled internally from rupture of a degenerate liver.

H. LEENEY.

Correspondence.

FLOCK AVERAGES.

To the Editor of "Eggs."

Dear Mr. Newman,—The method of calculating flock averages referred to by P. Washington in "Eggs," of March 5th, whilst it may in certain cases bear a relation to the standard of health of the flock has, nevertheless, the following drawbacks.

For every practical poultry-keeper the flock averages must bear a definite relation to his feeding costs. By P. Washington's method a false relation is at once established.

In the case of the breeder, as also is the case of the sensible man who is always culling his flock, the original number is always varying ; so that the calculations involved by the method referred to, though in themselves arithmetically simple, would become so frequent and laborious as to be distasteful to the average farmer. The necessity for a uniform and approved method of calculation undoubtedly exists.

Is it too much to hope that the Council of the S.P.B.A. may give the matter their attention?

Yours faithfully,

A. W. DISNEY-ROEBUCK.

LEG WEAKNESS.

To the Editor of "Eggs."

Dear Sir,—Re the correspondence going on re Leg Weakness, especially that of "A Little Man," in this week's "Eggs." I entirely disagree with him.

Two seasons ago I had a batch of about 60 chicks which I put under a Frank Snowden's Pyramid Hover in a Randolph Meech's house, 6 x 4 x 4, span roof, with an **earth floor, which I always understood was best to rear chicks.** Up to a week old they were a picture, and then the trouble started. They all went off their legs, which I put down to, and in fact I am sure was, the heat from the lamp drawing the moisture out of the ground during the night.

I now put a tray under, made of 1 inch wood, and I have never lost a chick since with leg weakness.

I agree they want plenty of air, but not moisture drawing into their legs.

Yours faithfully,

H. A. HARDAFIER.

INFECTIOUS PNEUMONIA.

To the Editor of "Eggs."

Dear Sir,—I wrote you some time ago re Death of Chicks. I sent six away for post-mortem and received the report "Infectious pneumonia."

I showed the report to a doctor friend, and he told me to get some "Ferri et ammoncit," one teaspoonful to the gallon.

I have given all my chicks this medicated drinking water since, and I have not lost a single chick. These have all been reared in the same house and on the same ground, where I lost all my first hatch of upwards of 50.

I may say I have never had a stronger lot of chicks than these that have been treated as above. I hope this "tip" will be of use to other readers.

Yours truly,

JAMES E. SENIOR.

STABILITY OF EGG PRICES.

To the Editor of "Eggs."

Dear Sir,—I am interested in the letter in this week's "Eggs" on the Stability of Egg Prices, but there is one aspect of the question that has not been touched upon by your correspondent. Until the poultry industry can include in their organisation the farmers' wives and daughters we can never get the prices stabilised nor the standard uniform.

In the north country the farmers' wives, with rare exceptions, carry on their poultry in the old-fashioned way. They probably never pay for any food, use mostly old buildings, and sell their eggs and poultry to the dealers for pocket money, not knowing in the least what is the cost of production. In the market where I sell my eggs the sellers often do not ask the price before the eggs are in the dealer's boxes. The eggs are dirty and ungraded. I graded mine at first, taking them down in two baskets, and was given exactly the same price for both. For my clean, infertile eggs, all weighing

2 ozs., I cannot get more than the dirty, mixed lots that I see come into the market. I have heard the dealers say that large eggs were not wanted, and then to the next person that her eggs were too small.

If any plan could be devised to interest and capture the co-operation of the farmers' wives something might be accomplished, but without them we of the poultry industry will always have an unknown quantity to deal with, and one that will continue to undercut our prices regardless of the cost of production.

Yours truly,
BESSIE STOBART.

SEX LINKAGE.

To the Editor of "Eggs."

Dear Mr. Newman,—I read with great interest the February 27th Editorial. This question of the value of the sex-linked cross to the breeder should be discussed. It seems to me that until the breeder can create a market for the caponised light-breed cockerels there is room for the development of the sex-linked cross *within a breed*. It has to be acknowledged that as yet it is not possible to so control the processes of sex-determination and differentiation that only females or only males are hatched. The ideal bird for such work would be a Silver Leghorn, possessing all the qualities of the best utility White Leghorn and indistinguishable superficially therefrom, a White Leghorn that had a plumage of the same sort as that of the White Wyandotte. Such a silver could then be used with improved Buff Leghorns.

In the meantime I suggest that the best field for sex-linkage work appears to be the Sussex, in which breed the Red and the Light varieties need not differ one from the other, save in that the one is a gold and the other a silver. If these two varieties were used then since any gold cock cannot carry silver, and since any silver hen cannot carry gold, any Red cock and any Light hen in the flock could be used for further breeding, and every bird would be either a typical Red or else a typical Light. Through breeding bird would differ from bird only in sex and in colour. There would be no cross-breeding as ordinarily understood.

Yours sincerely,
March 10th, 1924. F. A. E. CREW.

LEG WEAKNESS.

To the Editor of "Eggs."

Dear Mr. Newman,—The result of my experiments will be of interest to Mr. Clayton.

This season I ripped out all board flooring from my chick brooders, then removed earth to depth of one spit. Upon this I laid ½ inch wire netting (mice and rats can squeeze through ¾ inch mesh), fixing same carefully to sides. The earth was then replaced with ordinary clods and soil dug fresh from the garden, and directly upon this, without any other protection whatever, I placed my Pioneer Hovers, with a good packing of hay around to safeguard from draughts.

So far out of 210 chicks in three hatches I have only had one case of leg weakness, and this was obviously a cockerel growing too fast (he outgrew his "mates" by half an inch at four weeks old, is now as straight as the rest). I am not stating that I did not suffer any mortality whatever due to other causes, mostly the cold winds, but certainly I have had better luck with this distressing complaint of leg weakness.

Yours truly,
EDWIN NOBLE, F.Z.S.

CHICK MORTALITY.

To the Editor of "Eggs."

Dear Sir,—There are few readers of "Eggs" who will not bless you for your article on "Chick Mortality," and the promise it offers of a real effort to get at the cause of our heavy losses.

These are a serious factor in the economics of poultry farming, to say nothing of the worry and anxiety they cause. There is, of course, a simple remedy that needs no test, viz., return to Nature and hatch only by hens. Mr. Toovey has shown the way. However, so long as artificial incubation and rearing by brooders and hovers exist, we may confidently expect that unless these two processes have been subjected to systematic scientific examination, corrected by equally scientific practical tests, we shall never discover the secrets of the two processes.

It seems to me, as a new-comer into the poultry business, that I've never known a business where the crudest empiricism is so rampant. Whether it is chicken appliances, or a scientific instrument, such as an incubator should be, or a brooder, the industry is overloaded with gear which nobody seems thoroughly to understand. I've walked the round of the poultry exhibitions, and have been astounded at the ignorance displayed by vendors of the appliances they are showing, and the purpose they should serve. I am convinced that the sooner science comes to our aid, the sooner will our trouble diminish. Cease, they never will, for Nature, in its aspect of Life, always baffles us by its variety and the unexpected. Still, science can do much, and if the laboratories will get to work on the brooder, they will render aid at the point of our work where aid is most urgently needed.

May I venture to indicate a few points wherein the adjunct seems to need attention?

First. Why is the heat always reflected downwards?

Second. Does the chick require heat imparted to it, or the means of conserving its own heat?

Third. Why is the heat reflector always of metal?

Fourth. What should be the proper hygrometeric condition of the brooder?

Dealing with these points in general terms, and briefly, I doubt whether a reference to Nature justifies downward heat thrust upon the chick, even if the hen imparts heat to the chick, and this is doubtful.

Speaking functionally, her business is to help the chick to conserve and make the best use of its own heat, a function that is exerted more laterally than perpendicularly.

Where the hen beats the hover is that she affords assistance on the sides of the chick, less through the boney back than round the vital abdominal regions.

If this theorising is sound, then should not the brooder impart its heat laterally, and the throttling mass of hot air over its head be lifted off? Let anyone put their head near the ceiling of a gas-lighted room, and they will better understand the effects of the top-heated brooder.

Then as to the third point. Is there, from the point of view of health, any worse heating medium than metal? If anyone doubts, let me recur to his experiences at sea when he huddled for warmth about the funnels, where a most suffocating dry heat radiated. The experienced know it is the place to avoid. Why then should we assume that heat reflected from a tin hover is any better? If top heat is correct, then wouldn't an earthenware reflector be better, or substance like the course earthenware casserole or flower pot?

Then as to moisture. You've called attention to this. It is fundamental, yet with some experience, no brooder appears to provide for it. It appears that we ought to know what degree of moisture is required, a thing not difficult to determine with the requisite appliances, and then all we practical men will need is a tank of water, a wet and dry thermometer, and one real difficulty will have been overcome.

Yours truly,

C. HESKETH (MAJOR).

LEG WEAKNESS.

To the Editor of "Eggs."

Dear Sir,—Mr. J. C. Clayton's method of dealing with leg weakness seems to me to be rather complicated, and would, on a large farm, necessitate extra labour.

A very simple way which I have found to be quite effective is to use wet sand as litter—*i.e.*, sand taken straight from the sand pit. Not only does this prevent leg weakness, but the chicks eat a large quantity of it, which undoubtedly aids their digestive organs.

Yours truly,

H. J. BERRY.

STABILITY OF EGG PRICES.

To the Editor of "Eggs."

Dear Sir,—I fail to see how you could fix a price for eggs, if you look at wholesale prices in your issue. They vary from one price to another in the same town. In our town farm eggs were sold at 2s. 6d., and in the Danish shops a card was up "Imported Eggs, 2s. 8d." There are so many kinds of eggs, and you cannot judge by the shell. Box eggs came from all over the country, and are often mixed with the farmers' eggs. If you get your eggs from a reliable source it is a different matter, but the shop man fills up his baskets quite regardless of dates.

Supply and demand must rule the price.

Yours faithfully,

GRISELDA CHEAPE (LADY).

STABILITY OF EGG PRICES.

To the Editor of "Eggs."

Dear Editor,—Fixed prices in connection with eggs, if said quickly, sounds all right, but does Mr. Dowling-Powell realise the difference between eggs and milk, and, in fact, I will go further, and ask him if he realises the difference between eggs, and eggs? Milk must be up to a standard—Are Eggs? This is not intended for self-advertisement, but I will state that, say 20 score as collected from our own farm would stand out against any 20 score collected from any farm we collect from. We specialise in a high-grade selected egg, and charge more, naturally, than the common or garden ones.

Take two days in the week, and one day's collection in a certain district is better by 25 per cent. than another day in another district. Where does the standard price enter into it? Why do you get graded eggs in provincial markets?

Some farmers breed poultry, others obtain their stock more or less by accident. Some have clean nests, hence clean eggs; others—well, otherwise. Again, where is the standard?

We have never yet sold a dirty egg, but we have washed some.

That reminds me of a thing that happened two weeks ago. A customer in town told the writer that he had had to purchase a case of eggs from the London market, and incidentally was charged 6d. per 100 (long) less than our quotation that morning. In showing me the sample I remarked that we had never delivered a dirty egg, such as the one shown, which brought the retort, and in all seriousness: "It's proof they're English." To that end of the story:—Where is the standard? By the way, what an unconscious compliment to the foreigner!

Yours faithfully,

HAROLD S. KNOWLES.

THE GENUINE BREEDER FOR THE NOVICE.

To the Editor of "Eggs."

Dear Sir,—I would like you to publish my experience over the last two hatching seasons, which will, no doubt, be interesting to some of our readers, and a guard for others, who may be situated in the same position as myself, and who will no doubt profit by my expensive experience in buying day-old chicks, etc., from other than genuine breeders.

On the 5th of April last year I bought 24 R.I. Red chicks from a man who bred his own. Of these I have 14 pullets now, and disposed of six cockerels five days later—*i.e.*, April 10th I bought 24 White Leghorn chicks, which I fostered and fed in the same way, from a DAY-OLD MERCHANT, out of which 18 died within two weeks of buying them. Note that in the first case I paid 25s. for 24—*i.e.*, good result. The second case I paid 30s. for 24—*i.e.*, very bad results. So much for last year.

This year I hoped for better luck, and after raising a few shillings tried the last-named again. I bought 25 R.I. Reds, reputed to be Golden's, and 12 White Leghorns (Cam-Barron). After five weeks I can now show ten chickens out of 37, and still dying.

I bought a new Thornbus, "Silver Hen," 50-egg size, and my feeding consists of Spratt's chick food, biscuit meal, Sussex ground oats, and Molassine chick raising meal. They have been kept inside another house, had an earth run, and kept clean. I paid 45s. for these, which I could ill-afford, but better results would have satisfied my price. The breeding season is now well on, and I cannot pay to replace the losses. What a pleasant outlook! Certainly disheartening. The two years previous to these last two I had fairly good results from the same raising, I can only hope for better luck next year, as I cannot afford to buy more this year.

Where does the fault lie? My case points to the sellers. I have watched for signs, and can say that White Diarrhoea was not the cause. Pneumonia may have been present in one or two cases, but that would not justify my losses. Either they are buying haphazard, or very bad breeding. Certainly they are not to be relied upon.

It has been a bitter and expensive lesson to me, being only a backyarder, also a mistake that will require another season or two to replace, but I may have the satisfaction of saving others from doing likewise. The genuine breeder after all is the *cheapest*; and most reliable man to buy from. A conclusion arrived at only after a bitter experience, and one that has left me helpless, but I hope to persevere in the future.

I am, yours truly,

H. R. L.

THE NATIONAL EGG LAYING TEST.

Report of the fourth month of the Test to 20th February.

There has been a large increase of eggs during the month, as it to be expected. The weather conditions improved very considerably for the first three weeks, but on the 20th day severe weather set in, and the daily collection of eggs fell over 200.

It is curious to note that the birds most seriously affected by the adverse conditions were those which had been in lay from the beginning of the Test.

The highest pen score for the month is claimed by a pen of Buff Rocks, owned by Mr. E. Beach, with 118 eggs. A pullet of the same breed, owned by Mrs. M. Crookes, has put up the longest sequence—35 eggs in as many days. It is pleasing to note that Buff Rocks continue to produce eggs of a very fine quality.

The best pen average to date still stands to the credit of Miss Skinner's Croad Langshans, which includes the highest individual scoring pullet with a record of 100 eggs in 112 days.

The flock average for the four months is 46.58 eggs per bird; that of the heavy breeds 49.27; and the light breeds 43.70; while the average of the championship birds stands at 51.35.

A few birds are still suffering from fowl pox and avian diphtheria, but are progressing satisfactorily.

White Wyandottes have taken a long lead over the Leghorns, the averages being 55.88 and 44.14 respectively. It is noticeable, however, that the Wyandottes have laid a much higher percentage of under-weight and second-grade eggs.

Australorps have only done moderately, the average being 35.98 per bird. It is most unsatisfactory to note the high percentage of second-grade and under-weight eggs this breed have laid.

Barnevelders have done remarkably well as regards size of egg, but numbers are very small, and they take a low place in the competition.

Minorcas are disappointing, but the single pen of Buff Leghorns has done remarkably well, with an average of 47.40 per bird, and has scored the full number of points.

Buff Orpingtons have done well with an average of 50.27.

Black Leghorns have done a little better than Whites, and the future of this breed appears to be improving every day.

As a rule the newcomers, such as Exchequer Leghorns, Golden Barred Plymouth Rocks, Marsh Daisies, Cuckoo Leghorns, and Silver Campines have only done moderately well.

The following are the leading pens:—

SECTION 1.—Championship (10 Pullets).

Pos.	Owner of Pen.	Test Score Value.
1.	Metcalfe, Few and Co., Ltd.	654
2.	Frank Snowden	630
3.	W. Bradbury	597

SECTION 2.—White Leghorns (Five Pullets).

1.	F. R. Welch	351
2.	Mrs. E. M. Knight	342
3	David Baxter	339

SECTION 3.—Black Leghorns (Five Pullets).

1.	Frank Snowden	355
2.	J. H. Hodkinson	324
3.	J. and A. Moore	322

SECTION 4.—Non-Sitting Breeds (Five Pullets).

1.	J. H. Thompson	291
2.	R. B. Reed	271
3.	Major E. T. Kingscotte	246

SECTION 4a—Exchequer Leghorns.

1.	Vice-Admiral C. Cayley	214
2.—	Sam Outhwaite	201
3.	D. G. Bloom	130

SECTION 5.—White Wyandottes (Five Pullets).

Pos.	Owner of Pen.	Test Score Value.
1.	Mrs. M. E. Clay	392
2.	Harry Eves	375
3.	C. G. Cross	374

SECTION 6.—Rhode Island Reds (Five Pullets).

1.	W. and T. Salt	298
2.	Arthur Gawthropp	340
3.	E. G. Hunt	317

SECTION 7.—Sussex (Five Pullets).

1.	W. Bradbury	326
2.	C. L. and J. A. Thomson	296
3.	E. Sandford-Rossall	284

SECTION 8.—Sitting Breeds (Five Pullets).

1.	Miss K. B. Skinner	398
2.	Miss Harrison-Bell	351
3.	A. Wright	335

SUB-SECTION 8a.—Austral Orpingtons.

1.	H. R. Parsons	247
2.	Hon. Mrs. Adams	193
3.	F. Flowerdew	187

SUB-SECTION 8b.—Buff Rocks.

1.	Miss Harrison-Bell	351
2.	A. Wright	335
3.	F. R. Welch	297

SUB-SECTION 8c.—Orpingtons.

1.	Miss M. Fowler	324
2.	Mrs. K. Simpson	299
3.	Colonel S. Sandbach	263

The Ducks have done remarkably well, in spite of very unfavourable weather, the average per bird rising to 20.05 eggs, as compared with 13.68 last month.

It is interesting to note that the heavy breeds in this section, although running in large flocks, and fed like the light breeds, are doing well, Captain Heseltine's pen not being far behind the leading pen of Khaki-Campbells, owned by Miss Harrison-Bell. This does not support the generally-expressed opinion.

GLOUCESTERSHIRE REPORT.

INCREASED YIELD OVER PREVIOUS MONTH.

The following is the report on the Gloucestershire laying test (under the supervision of Mr. L. G. Price, County Instructor in Poultry Keeping) for the fifth month ended February 22nd:—

In spite of adverse weather, the egg yield has increased on the previous month, 4,711 pullet eggs having been collected against 3,893 the previous month, giving a total of 19,122 eggs for the five months, an average of 62.9 per bird.

Points of interest are the size of the W.W. eggs in the leading pens of both sections, and the splendid average of the pen of Barnevelders—Section A, H.B. In the amateur section the school children of Maisemore Church of England School hold first position. Particulars of a similar effort in any other laying test would be welcomed. The pen duck section shows K.-C. leading, while in the Single pen section the W.R. leads. The health of the birds is good.

SECTION A.—LIGHT BREED (Professional).
(Five birds constitute a Pen).

	Points		Grade.	
Owner.	Awarded.	A.	B.	C.
G B. Metcalfe	1894	394	12	—
Major J. G. Dugdale	1885	414	5	—
J. L. Brown	1701	356	16	—
Hinton P.F.	1757	384	6	—
Coaley P.F.	1698	344	37	2
H. T. Godber	1665	346	15	1

All White Leghorns.

SECTION A.—HEAVY BREED (Professional).

	Points		Grade.	
Owner and Breed.	Awarded.	A.	B.	C.
P. S. Beales (W.W.)	1938	403	17	—
T. L. Davies (W.W.)	1855	389	20	—
P. M. Hinton (W.W.)	1794	390	2	—
W. R. Partridge (W.W.)	1751	374	8	—
H. W. Fowles (W.W.)	1737	301	104	2
W. R. Partridge (B'Veld.)	1590	354	7	—

SECTION B.—LIGHT BREED.
Confined to owners of not more than 50 laying head.

	Points		Grade.	
Owner.	Awarded.	A.	B.	C.
Mrs. S. A. Brown	1558	274	88	—
Mrs. D. Japp (B.L.)	1241	268	10	—
J. A. Hall	1223	277	2	—
K. Wilson	1140	243	7	—
J. D. Crewdson	1084	234	11	—

SECTION B.—HEAVY BREED.
Confined to owners of not more than 50 laying head.

	Points		Grade.	
Owner and Breed.	Awarded.	A.	B.	C.
Maisemore School (W.W.)	1717	374	5	—
L. Grist (W.W.)	1711	374	3	—
Miss M. Lawrence (R.I.R)	1196	254	10	—
C. G. Young (R.I.R.)	903	195	16	—

SINGLE PEN SECTION.

Section I.—White Leghorn.

	Points		Grade.	
Owner.	Awarded.	A.	B.	C.
Major J. G. Dugdale	542	117	—	—
Misses Ransford (12)	447	98	—	—
L. Grist	422	50	54	1
Misses Ransford (2)	399	82	2	—
Sherborne Park P.F. (8)	354	76	—	—
J. E. Boyd	338	63	9	—

SECTION 2.—WHITE WYANDOTTE.

	Points		Grade.	
Owner.	Awarded.	A.	B.	C.
Lord Sherborne	556	113	11	—
Philip Clapham	510	110	—	—
W. R. Partridge (18)	500	109	—	—
W. O. Garbutt (21)	485	101	5	—
Miss H. Baylis	469	101	1	—
W. R. Partridge (23)	462	100	—	—

SECTION 3.—RHODE ISLAND RED.

	Points		Grade.	
Owner.	Awarded.	A.	B.	C.
F. W. Clifford	481	104	1	—
Miss H. Reed	428	93	1	—
A. Daunton (32;	388	88	1	—
Miss M. Lawrence	349	74	—	—
A. Daunton (44)	337	75	—	—
J. N. Horne	325	68	4	—
S. Barnes	48	12	—	—
Tewkesbury Senr. Sch.	8	1	1	—

SECTION 4.—A.O.V. LIGHT BREED.

Owner and Breed.	Points Awarded.	Grade.		
		A.	B.	C.
G. B. Metcalfe (B.L.)	432	93	1	—
H. S. Hitch (Ancona)	382	74	10	—
A. Daunton (Ancona)	362	79	—	—
H. Lynden Lemon (B. La. B.) ...	347	74	2	—
M. A. Greenway (B.L.)	246	56	—	—
L. Grist (Ancona)	243	56	—	—

SECTION 5.—A.O.V. HEAVY BREED.

Owner and Breed.	Points Awarded.	Grade.		
		A.	B.	C.
Major J. G. Dugdale (L.S.)	563	122	—	—
J. L. Brown (L.S.)	426	94	—	—
Miss M. Lawrence (B'Veld)	403	87	—	—
Mrs. E. Weinholt (Aus. Orp.)	400	84	1	—
F. R. Welch (L.S.)	376	83	—	—
Miss H. Reed (L.S.)	315	53	19	—

SECTION 6.—DUCKS.

Owner and Breed.	Test. Score.	Under. Weight.
Mrs. A. Japp (W.R.)	90	—
Major J. D. Dugdale (K.C.)	86	1
Mrs. E. Weinholt (K.C.)	76	4
W. R. Partridge (8) (W.R.)	73	—
W. R. Partridge (10) (W.R.)	68	—
Sherborne Park P.F. (W.R.)	61	—

PEN DUCK SECTION.

(Four Ducks to the Pen).

Report for the fourth month ended 8th February, 1924:—

Owner and Breed.	Test. Score.	Under. Weight.
Bradley Agricultural School (K.C.)	286	—
Major J. G. Dugdale (K.C.)	285	1
Sherborne Park P.F. (W.W.)	207	1
D. C. Herbert (K.C.)	204	2
G. H. H. Simmons (K.C.)	187	—
F. L. Walters (W.R.)	169	—

OUR FRONT COVER.

Miss Harrison Bell, whose photograph appears on our front cover, is very well-known to most of those interested in poultry, and particularly in duck breeding. There are few of us who have not visited the Dairy, Palace or Olympia Shows during recent years, and noticed the crowd round Miss Bell's stand, watching with amusement and delight the tame ducks which she has always on exhibition.

From the descriptive matter on our front cover it will be seen that Miss Bell is in the proud position of being the owner of a duck which holds the World's record, and from the first Duck Laying Test she has always held a prominent position with the ducks from Welwyn.

Khaki-Campbells are much to the fore on the Sisservenes Farm, but White Runners are also one of the leading features, and of these Miss Bell has a typical strain. There are also Light Sussex and White Leghorns, of which Miss Bell has some typical specimens.

POST-MORTEMS—Continued.

L. A. C. J. This once magnificent cock was wasted almost to a skeleton by a disease of the spleen. The organ has been sent to the best pathologist for miscroscopical and cultural examination. It looks like anthrax, but when folks see the bird first, and the letter a week later (when reminded of it), I am under the disadvantage which all bacteriologists will understand of dealing with decomposition bacilli which may have effectually disposed of the original invaders or true pathogenic organisms. Will others please follow the published rules, and save us unnecessary correspondence?

G. B. "The sprinkling of something like (white) pepper" consisted of crystals of urate of sodium, as a symptom of gout, of which she was the victim. Please do not send mutilated viscera another time, but the whole bird. In this case the organs were so advanced in disease that there was no difficulty in diagnosis, but there are others in which I fail to find the cause of death.

D. P., Lewes. She was killed by the pressure of internal fat. There was 1½ inches in the abdomen, which made her go down by the stern. The heart was loaded and the chest walls, so that she could not breathe, and the spleen was as big as a turkey's egg. It is not any infectious disease, so keep your tail up, and things will come right again. Fast them for 24 hours, and give a teaspoonful (heaped up) of Epsom salts between each half a dozen, and continue this daily for a week or more. Cover their corn in short litter, so that they must get exercise in finding it.

K. F. K. The chicks had brooder pneumonia (pneumomycosis), which is very infectious. We continue to receive favourable reports on the use of iron and quinine in the drinking water. Twenty to forty grains of the citrate to each gallon may be used, beginning with the smaller dose for the very young, and working up the scale for older birds. These chicks had no more packing than a foolscap envelope affords, and they were smashed flat in the post, and might have been destroyed at the discretion of the post office, had I not "made friends of the Mammon," etc. Cigarette boxes are convenient receptacles for small chicks.

S. E. R. Cerebral apoplexy accounted for the sudden death of this otherwise healthy pullet.

G. L. of B. On opening this chick I found the glandular stomach and the gizzard greatly distended, so much so that the constriction or neck between them was abolished (as it is when a twisted rope of grass is the cause of death of birds any age). This was not the cause, but the engorgement with perfectly suitable food was the result of inability to deal with it in the gizzard. And the failure was due to **total absence of grit of any kind.** I spread the whole contents, and, with a spatula, made sure that there was not a single atom of grit, before bring this accusation of bad management to your notice.

"Ebor." One of the chicks had B.W.D., and the other had an imperfectly formed heart, and could not have lived.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Stafford, Harold L., "Briar Dene," 180, College Street, Long Eaton, near Notts.
Wheeler, Capt. E. A., Vine House, Wickham Bishops, Witham, Essex.
Butler, Frank W., Fair Oak, All Stretton, Church Stretton, Salop.
Baker, Hugh M., Nutbourne Manor, Pulborough, Sussex.
Shuttleworth, C. A., The Central Supply Stores, Lathersdale, Yorks.
Mowbray, G. B. de, Fir Dene, Redlynch, near Salisbury.
Senior, Harold, 7, Riversdale, Glebelands Road, Ashton-on-Mersey, near Manchester.
Hague, E. W. D., 10, St. John's Avenue, Bridlington, E. Yorks.
Hilson, R. G., 253, St. Alban's Road, Watford, Herts.
Woodhead, W. A., Ashchurch P.F., Fiddington Lane, near Tewkesbury, Gloucester.
Mackintosh, Miss A. S., Bron-y-de, Churt, Surrey.
Erde, M. J., Claride House, Lingfield, Surrey.
Burgess, R. J., Upper Wickens Lane, Upperthong, Holmfirth, near Huddersfield.
Reeve, Miss A. V., The Oaklands, Cordy Lane, Eastwood, Notts.
Ritson, Mrs., Thornton, Berwick-on-Tweed.
Ransome, A. O., Emlin Hall P.F., Torver, Coniston, Lancs.
Dunford, J. A., Woodville, Middleton, Freshwater, I.O.W.
Houghton, J., Moulders Farm, Barton Moss, Patricroft, Lancs.
Vincent, J. E., Hemsworth Lane End, near Pontefract, Yorks.
Main, Miss V. G., The Priory, Salisbury.
Rawson, F. P. S., Brockwell, Triangle, Halifax.
Henshall, Miss E., 120, Loughborough Road, West Bridgford, Notts.
Hunter, H. E., Coronation Villa, Wroxham, Norfolk.
Bernard, F. C., Belfield P.F., Stillorgan Road, Dublin.
Edwards, John, Hatton Hill P.F., Ford Lanes, Litherland, Liverpool.
Smart, L., Mayfield, Beaufort Road, Brooklands, Cheshire.
Hildyard, H. M., Cherry Garth, Cottingham, E. Yorks.
Willshire, Mrs. G. M., "Elmtree," Woking Road, Guildford.
Plant, W., "Lea View," London Road, Benfleet, Essex.

EAST DEVON BRANCH.

LECTURES AND MEETINGS.

At the Town Hall, Ottery St. Mary, on Friday, March 28th, at 6 p.m. President: A. T. Loram, J.P., in the chair. "Poultry Feeding in Theory and Practice," by E. Russel, Esq. (Lecturer on Poultry to the County of Devon).

At the Institute, Aylesbere, on Wednesday, April 2nd, at 7 p.m. President in the chair, F. D. Barnes, Esq. (Heathlands Poultry Farm). "On Chicken Farming in General," and Capt. H. M. Jelley on "Unity is Strength" or "Why You Should Join the East Devon Branch S.P.B.A.?" All interested cordially invited to both meetings.

H. JELLEY (Captain), Sec.
Broad Oak Poultry Farm.

APPRECIATION OF "EGGS."

Brown Egg Farm, Downs Road,
Rottingdean, Brighton, Sussex.

"May I take this opportunity of thanking you for the instruction I have obtained from your valuable paper 'Eggs.' I owe my success entirely to your good work.

Wishing you and 'Eggs" every success.

Yours in haste, and thankfully,
W. H. BECKETT, Capt."

The Manor House,
Haddenham, Cambs.

"I wish to mention that 'Eggs' has been of very great help to me since I have been poultry-farming, and I'm sure it will help me some more in the future.

Yours truly,
(Miss) M. E. PORTER."

Hinderwell, S.O.,
Yorks.

"I am only a beginner, and I find your paper most helpful. I belong to the ranks of those who 'have given up all other poultry papers for 'Eggs,' and their name is legion.

I am very grateful to "Eggs" for the help it has given me.

Yours truly,
(Miss) I. M. STANIFORTH."

39, Star Street,
Bradmore, near Wolverhampton.

"I may say in conclusion, that 'Eggs" is a **real** poultry paper, and is worth much more than the 2d. per week, more like 2d. per page. Thanking you for giving us such splendid 'lessons' each week.

Yours faithfully,
J. J. SUTTON."

King's Stagg,
Sturminster Newton, Dorset.

"As a matter of interest, I am an engineer by profession, and until the war I lived and worked in London. 'Eggs" is the only poultry paper I read, and I think that it is entirely due to the interest in poultry that it has caused me to have that I have now gone so far as to buy a little land, and I hope to settle down to enjoy a country life, instead of existing in a city.

For which many thanks.

Yours very truly,
G. LEE EVANS."

7, Ralston Terrace,
Anniesland, Glasgow.

"Though I have kept poultry for years, I must confess I have learned more this past year through your valuable paper, 'Eggs.' This is a book, and not a paper, and should be advertised more.

Yours faithfully,
S. J. HAMPTON."

"May I also thank you for your great help, through your paper 'Eggs,' to me and my poultry. I have followed your instructions, and last year I brought up 504 chicks out of 517 hatched and all with hens. I did all the work with hens and chicks without any help until the chicks were a fortnight old. My housework to look to also. The birds did not give me a bit of trouble, although I started hatching 25th February and ended at the end of March."

Yours faithfully,
(MRS.) T. A. YOUNG.

Broadfield Poultry Farm,
Tiptree, Essex.

" I have for many years been in the poultry business, both in England and British Columbia, but have never come across a paper that is in the same street as 'Eggs' for instruction and interest.

Yours truly,
E. H. STREETEN."

30, Pitt Street, Mexboro', Nr. Rotherham.

" Why, oh, why, is the S.P.B.A. publication, 'Eggs,' not more widely advertised?

When I consider the type of information I have gleaned this last six weeks, after nearly five years of the other stuff, I feel that I ought to be able to claim damages against somebody for **lack of knowledge and time wasted.** There must be some others in the same boat as myself, too."

FRANCIS F. F. WALTON.

IMPORTANT.

Complaints have reached us in reference to the Manchester Continental Trading Company, Cromford Court, Manchester, who appear to have circularised members of the S.P.B.A., offering highest market price for large quantities of English New-Laid Eggs. One of our members advises us that he is unable to get his boxes or his money. It is mentioned in " John Bull " this week, that the firm " deal in farm produce, but the farmers do not get their money."

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 21st MARCH, 1924.

GRAIN AND FEEDING STUFFS.—Supplies of English wheat offered for sale remain small, but demand is anything but brisk and prices are again easier, averaging 10s. 8d. per cwt. Demand for malting barley is now very dull, and the seed trade being nearly over prices are lower. Oats meet a very poor demand, white oats especially being cheaper. All descriptions of imported grain are experiencing a quiet demand, and quotations are generally lower, Argentine maize averaging 10s. 5d. per cwt. against 10s. 9d. last week, and No. 2 Canada Western oats 9s. 9d. per cwt. against 9s. 11d.

A fair enquiry is reported for milling offals, at somewhat irregular prices. Barley meal is cheaper, averaging slightly under £11 per ton, and maize meat is also slightly easier in sympathy with lower maize prices. Oilcakes are in poor request, particularly linseed cakes, and a general reduction in prices is recorded.

MILLERS' OFFALS.—Bran (British): Bristol, £9 2s.; Hull. £7 12s.; Liverpool, £8 10s.; London, £7 10s. Broad Bran: Bristol, £9 15s.; Hull, £9 2s.; London, £8 7s. Fine Middlings (Imported): London, £9 7s. Coarse Middlings (British): Bristol, £9 15s.; Hull, £8 10s.; Liverpool, £8 15s.; London, £8 5s. Pollards (Imported): Bristol, £8 2s.; Hull, £7; Liverpool, £7 10s. Rice Bran: Bristol, £8; Liverpool, £8. MEAL.—Barley Meal: Bristol, £11 2s.; Hull, £10 10s.; London, £10 17s. Maize Meal: Bristol, £12; Hull, £11 8s.; Liverpool, £11 2s.; London, £11 15s. Maize Germ Meal: Bristol, £11 5s.; Hull, £10 15s.; London, £9 17s. Maize Gluten Feed: Bristol, £11; London, £9 7s.

EGGS AND DEAD POULTRY.

Eggs, both British and imported, are plentiful and sell at lower rates. Since January the general level of prices of British eggs at the wholesale markets has been appreciably higher than during the corresponding period last year, but the rapid fall during the past few weeks has brought them to an average of 15s. 3d. per 120, only 3d. per 120 higher than in the corresponding week in 1923. English chickens are scarce, and with a steady demand, recent quotations are well maintained.

Week-end Prices.—Eggs (per 120): British, 16s., 15s. 6d.; Irish, 15s. 6d., 14s. 6d.. Danish, 17s., 15s. 6d.; Dutch, 17s. 15s.; Moroccan, 12s., 11s.; Egyptian, 10s. 6d., 9s. 6d.; Italian, 15s. 9d., 14s.; Belgian, 15s. 6d.. 14s.

Dead Poultry (per lb.): Fowls—Surrey, 2s., 1s. 10d.; Irish, 1s. 8d., 1s. 6d.. Others, 1s. 8d., 1s. 6d. Ducks, 1s. 9d., 1s. 6d. Geese, 1s. 2d., 10d. Turkeys, 1s. 7d., 1s. 3d.

EGGS.

Per Doz.—Ashford: First, 1s. 4d.; Second, 1s. 1d. Birmingham: First, 1s. 8½d.; Second, 1s. 7¼d. Carlisle: First, 1s. 6d. Chelmsford: First. 1s. 6d.; Second, 1s. 4¼d. Denbigh: First, 1s. 4d.; Second, 1s. 3d. Derby: First, 1s. 10d. Dorchester: First, 1s. 1d. Exeter: First, 1s. 6d.; Second, 1s. 4d. Guildford: First, 1s. 3d.; Second, 1s. 6d. Hereford: First, 1s. 0d. Hull: First, 1s. 8d. Ipswich: First, 1s. 9d.; Second, 1s. 6d. King's Lynn: First, 1s. 6d.; Second, 1s. 3d. Lincoln: First. 1s. 8d. Llandilo: First, 1s. 6d.; Second, 1s. 3d. Newport (Mon.): First, 1s. 6d. Norwich: First, 1s. 6d. Oswestry: First, 1s. 2d.. Second, 1s. 0d. Penzance: First, 1s. 3d.; Second, 1s. 2d. Salisbury: First, 1s. 4d.; Second, 1s. 3d. Shrewsbury: First, 1s. 7d.; Second, 1s. 5d. Skipton: First, 2s. 0d. Truro: First, 1s. 3d. York: First, 1s. 9d.; Second, 1s. 8d.

FOWLS.

Per lb.—Birmingham: First, 1s. 6d.; Second, 9½d. Derby: First, *5s. 6d.; Second, *3s. 6d. Exeter: First, 1s. 7d. Hereford: First, 1s. 6d.; Second, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 4d. Lincoln: First, *5s. 0d.; Second, *3s. 0d. Llandilo: First, 2s. 3d.. Second, 2s. 0d. Newport (Mon.): First, 1s. 7d.; Second, 1s. 3d. Shrewsbury: First. 1s. 7d.; Second, 1s. 4d. Truro: First, 1s. 3d. York: First, *6s. 0d.; Second, *5s. 0d.

DUCKS.

Per lb. Exeter: First, 1s. 6d. Llandilo: First, 2s. 3d.; Second, 2s. 0d.

* Per Head.

EASTER HOLIDAYS, 1924

OWING to the EASTER Holidays, advertisements intended for our issue of 23rd April, must be received not later than FIRST POST Thursday morning, April 17th.

Classified Advertisements.

(PREPAID RATES).

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS,	per line, extra		9d.
DAY-OLD CHICKS	„	„	1s.
DAY-OLD CHICKS	„	„	1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3 insertions for the price of 2
6 „ „ „ 4
9 „ „ „ 6
13 „ „ „ 8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London. S E.16. to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office FIRST POST FRIDAYS for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

PULLETS.

FOR SALE.

R.I. Red, Anconas, W. Leghorns; 12s. 6d.-21s. each; related Gold Medal Pens. — Berney, W. Common, Harpenden.

Light Sussex, February hatched Pullets, from Thomson's direct, gold medal competition strain; from 12s. 6d.—Mathison, Esless Hall, Wrexham.

WHITE AND BLACK LEGHORNS.

Wye College Winter Laying Test, just concluded. My pen of Four Black Leghorn Pullets secure first position. Specialities: Pens of six to 12 three months' old Pullets. The breeds most suitable for suburban dwellers. Young Cockerels, two months old individually bred from my Registered S.P.B.A. Pens. Send for Mating and Price List.—Captain Owen, Horeham Road, Sussex.

ERNEST ORR,

Brooklands, Redhill, Surrey. White Leghorns and R.I. Reds. Egg production and breed type. Pullets from flock awarded 1st and gold medal for best utility light breed at Crystal Palace, 1923. 1922 Hens, 8s.; Pullets, 10s. 6d.; Eggs, 7s. 6d. D.O.C. All by L2 stock. Inspection invited.

12.

"It's Ful-O-Pep Growing Mash you need."

ON right feeding **now** depends next winter's supply of eggs. Give the right nutriment and plenty of it. That is why the Ful-O-Pep Way of leaving Ful-O-Pep Growing Mash before the chicks **day and night** is so amazingly successful. It is also economical, as the chicks **only eat what they need and no more.**

The method of feeding could not be simpler. Tip out Ful-O-Pep Growing Mash from the bag into a low dish and leave it **day and night** before the chicks. Feed right and you will not lose your chicks, but will raise the finest flock you ever saw.

Take up in the palm of your hand the amount of a beakful — there lies every vegetable, animal and mineral requirement, in correct **not guess-work** proportions, just so mixed up together that **neither you nor your chicks** can tell which is which. Taste it. It almost "melts in the mouth!" No chick can get digestive troubles with a Mash so fine as this.

Most poultry keepers who feed Ful-O-Pep use a Ful-O-Pep All-age Self-feeder because they find it keeps the food clean and prevents waste, and because the special cut price at which it is sold makes it cheaper than using odd dishes. Ask your corn dealer.

Save time and loss by reading the chapter on chick raising in the Ful-O-Pep Monthly Guide sent FREE and postage paid. The Guide has illustration and full details of the All-age Self-feeder.

FUL-O-PEP
GROWING MASH

NO MIXING; NO HEATING WATER; NO TROUBLE

Guaranteed by QUAKER OATS Ltd., 11, Finsbury Sq., E.C.2.

PULLETS.

FOR SALE.

Hobson's first prize Utility Black Minorcas, Laying Pullets, Cockerels, Eggs. —Hobson, Wrentnall House, Pulberbatch, Shrewsbury.

Ten extra good White Wyandotte Pullets, unbeatable layers; 7s. each. Grand Cockerels (Rodwell's); 12s. Seven grand Light Sussex Pullets, laying; 7s. each. Ten White Leghorn Pullets; 6s. each. Ten Black Leghorn Pullets; 6s. each. Twenty grand 1922 White Leghorn Pullets; 5s. each. Fifteen grand 1922 Ancona Pullets; 5s. each. Extra Dark Cockerel, 10s. Carriage paid. Satisfaction guaranteed.—Wilson, Poultry Farm, Barnoldswick.

24 Three Months Old White Wyandotte Pullets ready (Cam and Barron); 10s. to 15s. each. Cockerels, 6s. Dry Mash and skim milk reared. — Miss Newman, N.U.P.S., S.P.B.A., Dower House, Shinfield, Reading.

Twenty Lister and Russel Strain Light Sussex; 1923 April Pullets; £8 10s. Unrelated Cockerel; 21s. Satisfaction assured, or cash returned.—W. Woolnough, Whitehall, Crowborough, Sussex.

Fifty Ancona Hens, hatched April, 1922; £25. Twenty Ancona Pullets, hatched April, 1923; £12 10s. All Charles Lawson's strain; splendid condition; layers 2oz. eggs. — Mrs. Poston, Temple Manor, Selborne, Hants.

SEX-LINKED DAY-OLD PULLETS.
R.I.R. x Columbian Wyandottes; 25s. doz. Eggs, 7s. 6d. per 15. Gold Medal Blood both sides. Catalogue free.—L. H. Wase, Kingsland P.F., Bridport.

MAJOR ROBERT LETHBRIDGE, BROOMHILL, TIVERTON,

Offers Pedigree Rhode Islands Red, 1923 Pullets; splendid layers, by 302, 284, 291 egg males; 8s. each; to make room for 1924 stock. Orders booked for three months old pedigree Pullets. Delivery April onwards.

FOR IMMEDIATE DISPOSAL.

ENTIRE STOCK
W. LEGHORNS,
with winter records 41 to 72, all
CAREFULLY RECORDED
and rigorously culled. Barron-Pad. by Baldwin sires.
150—1923 **PULLETS,** 10s. each.
150—1922 **PULLETS.** 7s. 6d. each

No disease since established, 1913. Member S.P.B.A., 1915. Reduction on quantities.

PARSONS & SONS,
Ash, Surrey.

WHITE LEGHORNS (PADMAN)

February-March, 1923, from dams 180-250; sires from 250 dams for five generations. All L2 grand birds; full lay; 10s.—Commander Tippet, Goring Heath Pedigree Poultry Farm, Oxon.

BARNEVELDERS.

A few pure-bred 1923 Pullets; now laying. Owner giving up keeping second breed. Pullets, 15s.; Cockerels 10s. each.—Full particulars from Lieut.-Col. Kensington, Voakes, Thakeham, Sussex.

COCKS AND COCKERELS.

FOR SALE.

Black Leghorns. No Foot and Mouth Disease. Fine stock; Newman formula; full range subsoil, lime.—Finegan, Moatlands, Navan.

The Value of Stock.

A. HAROLD PAINE.

I am very gratified at the frequent tributes I receive to the value of my stock from both old and new clients. One breeder, to whom I supplied a good many birds in 1922, wrote me on the 4th inst. as follows: "Would you please let me know if you can supply 100 R.I.R. Pullets (hatched up to mid-January) at eight weeks old, if so, the price. I am going to turn my farm into an all Red one, and want sufficient breeding stock to raise a thousand pullets next season. I am having splendid hatching and rearing results with your Reds—100 per cent. fertility is the rule this year, and not the exception, and losses, so far, under five per cent." In a letter to hand on the 10th inst., another client writes: "You will be interested to hear that during February I have had 50 eggs from the two K.-C. ducks you supplied me with. Twenty eggs were saved and incubated, every egg being fertile." A further letter to hand yesterday (March 10th) says: "Please send me two sittings (15 N.R.) of your Super Pen K.-C. eggs as soon as possible. I leave it to your judgment as to which pen you send them from. I want type and eggs. If the birds that I hope to get this season come up to those I had last, I shall not have much to grumble at. Two have laid 160 to date, and others are after them close up. I saved one drake from your eggs last year. He got first and V.H.C. only times shown." Such testimony is the result of possessing birds of high stamina and proved utility value, which are under the management of skilled, careful, observant, and attentive helpers.

With my many hundreds of breeding R.I.R.'s and Ducks, I have no "Sick-Bay" for the treatment of disease. Any birds that may be ailing from any cause is given a few days in which to recover, and if improvement is not speedy, the bird is killed, and the carcase is burned. By such methods there is always a perfectly clean bill of health.

Sittings are from 10s. to three guineas for 15 eggs. Day-Olds 21s. to six guineas per dozen, live delivery guaranteed, and stock birds from 12s. 6d. each. These prices are extremely moderate, considering the value offered. My pens comprise birds which have scored high honours in the national laying Tests, and a pen of K.C.'s, hatched from my sittings, and entered in the Gloucestershire County Laying Test, led every breed and variety from the third month to the close, finishing 56 eggs ahead of all others. For this the Gold Medal was awarded. It really is very gratifying to hear of such successes, and to know of the great satisfaction given to my many clients.

I am now booking up stock bird, trios, and mated pens of my various breeds of ducks and my R.I. R's for delivery in the summer and autumn. In previous years I have had to disappoint many clients who only acquainted me with their requirements when almost every available bird had been already booked. The demand for my stock increases year by year; orders coming in freely from all parts of the country and abroad. My present arrangements, for summer and autumn delivery only permit of the following offers, subject to early ordering.

Trios (two ducks and drake of my famed White, Black, and Fawn and White Indian Runner, Khaki-Campbell, Buff Orpington, and Coaley Fawn Ducks, specially selected and delivered carriage paid at about three months old, £3 15s. 0d. Specially mated pens of ditto ,consisting of five ducks and drakes, for £6 15s. 0d.

Abacot Ranger Ducks, England's new and wonderful breed, which won the Silver Cup at Bentley, and led every breed and variety entered in the Four Duck Section at the Wye Agricultural College Test—the only times ever entered in Laying Competitions—will also be available, from 25s. per bird.

Here are a few further recent testimonials:—

A. W. Sale, Esq., Breeder of Pedigree R.I.R.'s, W.W.'s, W.L., L.S., and various breeds of ducks, Gables Farm, Rotherfield, Sussex, writes, 23/1/24.

"I am writing to express my satisfaction with everything with which you have supplied me. I am very pleased with the birds, some hundreds in number, which you sent me last season. The twenty-four Chalet Ideal Poultry Houses have been found as excellent in use as in construction. With the 40 tons of mashes and feeds supplied, I have reared most successfully, and on your methods of feeding my birds have laid well."

J. C. Roe, Esq., Deerleap Farm, Knockholt, Kent, writes, 27/2/24.

"I should like to tell you how pleased I am with the breeding pen of K.C.-'s which you sent me last year. Four of the ducks have laid as follows:—96 eggs in 97 days, 94 eggs in 97 days, 78 eggs in 79 days, 105 eggs in 127 days. In addition to being such good layers, they are so tame and friendly, and we are all delighted with them."

G. H. H. Simmons, Esq., M.S.P.B.A., Breeder of High - Class Pedigree Stock, W.W.'s, W.L.'s, Buff Rocks and Khaki-Campbells, The Burleigh Poultry Farm, Brimscombe, Gloucestershire, writes.

"The pen of K.-C.'s (hatched from your sittings) which I entered in the Gloucestershire County Laying Test led every breed and variety of ducks competing from the third month of the test, finishing with a score 56 eggs ahead of every other pen. For this record I was awarded the Gold Medal."

My beautifully illustrated 40 page "Book of The Laying Duck and Hen", printed on fine art paper, which tells you how to rear ducks and hens from the shell to maturity is sent post free to intending clients on application.

A. HAROLD PAINE,
The Chalet, Burgess Hill, Sussex.

THE BOOK OF THE LAYING DUCK & HEN:

BEING THE MATING LIST OF

A. HAROLD PAINE,

Member Poultry Club, Scientific Poultry Breeders' Association, National Utility Poultry Society, British Rhode Island Red Club, Indian Runner Duck Club, Utility Duck Club, Khaki-Campbell Duck Club, Coaley Fawn Duck Club, Utility Runner Duck Club, etc.

◆

:: *40 PAGES* ::

Beautifully Illustrated.

A book which tells you how to rear Poultry and Ducks from the shell to maturity.

It describes the various breeds of Utility Ducks, and gives illustrations of them from actual photographs.

It gives you full details of my World Record Rhode Island Reds.

It shows you how to brood successfully, and tells you how to feed and house your birds. It tells you how to hatch naturally and artificially. It tells you **what you need to know** about Poultry and Ducks.

A copy is being posted to every member of the Scientific Poultry Breeders' Association, whose name and address appears in the 1924 Year Book. If members who have joined the Association since the Year Book was published, and other readers of "Eggs" will kindly apply, a copy will be posted immediately, free.

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EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, April 2nd, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

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Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

SEX RATIOS IN POULTRY.

It is rather early in the season to talk of a "cockerel" year. No doubt the question will arrive presently, as it invariably does, from readers who have a number of superfluous males, as to whether or no this is what is known as a "cockerel" year.

It is, of course, extremely doubtful whether such years ever really occur. Any one breeder may find that in a given year he has a rather large excess of cockerels over pullets, and he finds another breeder who has perhaps the same experience, and, finding in this confirmation of his belief, straightway writes to the Poultry Press. A dozen other breeders may write to the same effect—and, lo! it is a "cockerel" year, although it will be agreed that the evidence adduced can hardly be said to be convincing to the thinking man.

The following article is taken from "Poultry Science":—

SEX-RATIOS IN POULTRY.

(By F. E. Mussehl, University of Nebraska.)

"A study was made of the sex distribution of 1,514 chicks hatched at this station during February, March, April and May, 1922. These chicks were hatched from our S.c. W. Leghorn, Barred Rock, and S.c. R. I. Red pedigreed breeding pens, all normal eggs produced during the breeding season being incubated. Sex of all chicks hatched was determined, and is included in the data.

"Jull reports the sex ratio of fowl as given by Darwin to be 48.64 per cent., by Pearl to be 48.57 per cent., and based on his own investigations to be 48.82 per cent. The term "sex ratio" Jull defines as the proportion of males in a total population of one hundred individuals.

"Our data indicate the following distribution of sex, including all three varieties and all mating observed:—

Number of chicks.	Number of males.	Sex-ratio.
1,514	791	52.24 p.c.

"The possibility of sex-ratios varying according to breed and variety is sometimes mentioned. Sex distribution for each variety was therefore studied, the data being as follows:—

Variety.	No. of chicks observed.	No. of male chicks.	Sex-ratio.
S.c. W. Leghorn	920	485	52.72 p.c.
S.c. Red	514	263	51.16 p.c.
Barred Rock	80	43	53.75 p.c.

"Jull (loc. cit.) reports an increasing number of pullets from eggs laid progressively during the first year of production. The first eggs laid by pullets under his observation produced a high proportion of males, and as egg laying increased the male ratio decreased very markedly. Practical poultrymen have likewise reported seasonal variations in the sex-ratio. Philo states that 'the early-hatched chickens are likely to run to cockerels to a much greater extent than those hatched from the the same pens later in the season.'

"Attempting to answer this question, we have grouped all chicks hatched into two groups, date of hatch before and after April 10th being the basis of classification. Chicks hatched before April 10th are included in the 'Early Hatch,' those after April 10th in the 'Late Hatch' group. Data are as follows:—

Variety.	Number early Hatched chicks.	Sex ratio.	Number late Hatched chicks.	Sex ratio
S.c. W. Leghorn	390	54.87p.c.	530	53.11p.c.
S.c. Red	291	50.17p.c.	223	52.01p.c.
Barred Rock	41	53.65p.c.	39	53.84p.c.

"It has also been reported by practical poultrymen that certain males have produced abnormally large numbers of chicks of either sex. We have studied the data on 920 S.c. W. Leghorn chicks, sired by four males, and submit data herewith. The number of chicks observed, though relatively large, is probably still too small to warrant final conclusions:—

Sire.	Total number chicks.	Sex ratio.
333 M.	72	36.11 p.c.
333 M.	423	53.42 p.c.
355 M.	204	40.68 p.c.
39 M.	221	59.27 p.c.

"Existing data indicate that the chromosome theory of sex determination is well grounded. Sex determination in birds differs from that in mammals in that the female is heterozygous for the sex factor and the male homozygous, but in birds. as in mammals, chance union of the sex chromosomes produced in equal numbers explains the usual numerical equality of the sexes."

One can hardly claim that this has added much to our knowledge of the subject. The numbers dealt with are too few to allow us to form a definite opinion, and it would be useless to attempt to found an opinion on an isolated experiment; there are other factors involved which may influence sex. Philo has merely given expression to an opinion which has been held for many years, but of which we have no positive evidence that it is correct; and in the attempt made to answer it by Mr. Mussehul, the evidence is by no means conclusive. We have been told that first the female determines the sex, that would appear to be an error, some males have produced abnormally large numbers of either sex, and one particular case has been recorded in which the male mated to six hens of different breeds produced an abnormally high percentage of females in every case. But if these experiments are to be of any real value they will have to be undertaken on a far more extensive scale before any final conclusions can be arrived at, and we shall have to be certain that no other factors are involved, for there are theorists who believe that sex is influenced by anything from the phases of the moon, the temperature of the incubator, the albuminoid ratio, or the fat content of the eggs.

Modern Poultry Feeding.

By TOM NEWMAN.

THE INFLUENCE OF THE RATION FED.

There are so many of us who fail to realise that the question as to whether a pullet will lay her full quota of eggs during her pullet year or not is very largely a matter of the ration fed. There are many other factors which may influence this, but none which exert a greater influence than the food. Faulty incubation, faulty brooders, overcrowding, bad housing will naturally very largely affect production, even if a pullet be well bred and well fed, but the greatest influence of all is the food supply. I am not referring to the time when the bird has reached sexual maturity (that is, has commenced to produce eggs), but the whole period from the shell until she reaches the productive stage. This will affect, not only the size of frame and body weight, not only the actual date at which she will begin to lay, but the number and size of eggs she will produce, and moreover, will affect her progeny.

Now let us look at this question as it is often put to me. "Can I use double the quantity of maize meal as ground oats are so much dearer?" (2) "Do you think it would pay me to buy dried milk at 50s. per cwt? It seems a high price, and shall I see a return?" These are two typical questions, and I think we can almost reduce the answer to £ s. d. I will deal with the last question first, particularly as regards the earlier period of a chick's career. You all know there is no food to compare with milk. Well, now, let us look at it in this light. We will assume that the cost of rearing a chick to six months of age is 6s. for food alone. That is an outside figure. Please don't say that it is absurd. I know that it is an exaggerated figure, but I am using it to give point to my argument, and to suit all conditions of poultry-keeping. I believe, although I am not sure on this point, that after the chick has reached the age of three months, that milk in any form has not the same value—or perhaps it would be better to say, does not exert the same effect, upon the chick as it does in the first few weeks of existence; but up to that point I am almost of opinion that it is absolutely necessary to obtain the fullest and most economical development. We will take it on the broadest basis possible, and assume that during the first thirteen weeks the average consumption of food is 1 lb. per week, and that 25 per cent. of this is dried milk, no other form of animal protein being used; that would mean 3 lbs. of dried milk per chick, which at 4½d. per lb. would add 1s. 1½d. to the cost of rearing. The additional cost of rearing the chick to the productive age will then be 1s. 1d. Later we see whether this additional cost will pay us or not.

Now we come to the question of the Sussex Ground Oat *v.* Maize Meal. I am a great believer in maize, in its various forms, more especially for egg production and the heavy producer, but for chick rearing it is not comparable with the ground oat. Maize does not assist materially in building up frame. It will play its part in the development of the chick; as an energy producing food it is equal to any other, and it will assist in the feathering, but it does not build up a firm flesh. On the contrary, it is a fat producer, and the fat is not the quality we want. The chick which is heavily fed with maize will lay in internal fat, and the flesh will be soft and flabby. Maize is of great value to the laying stock, but not to the developing chick. The ground oat has a totally different effect. It will give us firm flesh and a well-developed frame, thus you will see in the chick mash formula we use four parts Sussex ground oats to one part maize meal. So that it will not pay to replace the ground oats with maize meal, as we cannot build up frame with the maize.

If we base our comparisons of the Wellingham Test No. 4, we shall see that the additional cost of the milk over a period of 13 weeks is easily recoverable in the more healthy and more rapid development of the chicks to that age; a high percentage of the birds were marketable for table purposes at eleven weeks old, and this is a great consideration with the spring chick trade. Further, we had them laying at a much earlier age, and we know that these pullets laid more eggs in their year than they would have done had they not have had the milk; and, moreover, we shall breed stronger and better birds from them. So that there was a gain all round on the milk-fed chicks which amply repaid the additional outlay. Whether a food is economic or not must be judged by results, and not what it costs in £ s. d.

RYE AND RYE MIDDLINGS.—A member sent me a sample of rye middlings last week, and wished to know whether I thought they would be harmful or not to his fowls, as the sample was a good one. I replied that I did not think there was any likelihood of that, although I do not like rye for poultry, as it is not very palatable, and the birds do not always digest it well; but as he had fed it for some weeks, and results were satisfactory, there seemed no good reason for advising him not to carry on with those he had in stock. Now comes the answer:—

> "Your letter *re* Rye Middlings this morning. Since writing to you I tested the first lot of eggs set since using these middlings which may put a different aspect on the case. I found 190 infertile out of 684 eggs. My first hatch from eggs collected early in February showed only 6 per cent. infertile. So there was not much wrong with the breeding stock at that date, especially as I only lost seven chicks out of 300 under an anthracite stove. It rather looks as if the middlings had been infected with ergot. I have made no other change in the feeding of these birds since October, when they were put on your mash for breeders, which I also used last season and found very successful."

I cannot think that my correspondent is right. The chances that the rye middlings were in any way responsible for the high percentage of infertility seem rather remote. If the middlings had been infected with ergot, the effect would have been evident on the birds themselves. The action of ergot generally sets in at various periods varying from five minutes to half an hour, and is supposed to be due to a special effect on the muscular fibre, but there is little doubt that it acts on the spinal cord and nerve centres generally. We have had one or two cases reported of serious losses from fowls eating ergotised rye, but it seems very certain that had the middlings been infected as suggested with ergot there would have been, if not serious loss with the stock birds, at least symptoms which would have unmistakably pointed to its presence. The question remains as to what caused the remarkable increase in infertility. There are, of course, many other causes possible apart from the feeding.

I have received the following letter from Mr. H. M. Timpany:—

> "May I call the attention of your readers to the danger which lurks in the feeding of soya bean meal and its meals? I have lost thirty birds by feeding the extracted meal in a warm mash. It seems that some samples, when moist and warm, free prussic acid. This is due to the action of an enzyme upon the glucoside according to Professor Wood. Whether this reaction may take place at the body temperature I cannot say, probably not in view of the amount of soya meal now being used, but it is certainly highly risky to incorporate any bean meal in a warm mash."

I am very much astonished at the contents of Mr. Timpany's letter, having used a great deal of soya bean meal in warm mashes for many years previous to the war. I have never experienced any losses of this kind or seen any indications of trouble, but we must be grateful to Mr. Timpany for drawing our attention to the matter. It certainly needs investigation, and I shall be glad to hear from any of our readers who have used soya bean in a wet mash, whether they have had any losses or not.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Arrested Development.

By Capt. H. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

One may safely say that the average poultry-keeper rarely thinks of worms or parasites, if we except those which give rise to gapes. The internal parasites are many, and most injurious, and, because they are not suspected they thrive unchecked, and a holding of the semi-intensive kind becomes intensely verminous. Nor are the larger ones by any means immune to invasion. It needs but one pregnant female to rapidly populate a farm with parasites. Has not the immortal bard told us that "the vilest things do fastest propagate"?

Every advance in parasitology only emphasises the fact, and it is only that they have so many enemies that they do not exterminate their hosts. If one cod's egg in a thousand became a cod fish, all creation would perish in a world of putrid fish.

This subject of parasitism is specially before me at the present moment, as many members have sent chicks for examination since the days began to grow longer that have done well until about a month or six weeks of age, and have then failed to grow and thrive. They have changed the ration without finding any improvement, and many say that the youngsters "eat well," or "seem always hungry," but they grow feathers and sprout tails instead of making bodily growth.

I do not think any of these cases have been reported in "Eggs," as the greater number of post-mortem examinations are replied to by post, and not published. Chicken eat many parasites and digest them too, but one-month-old chick mistook a piece of wood with the bark on for a huge caterpillar—and so did I, until further examined—and this was half-way in the glandular stomach, and the other portion in the gizzard; a position from which it could not be dislodged. Although worms of many kinds are seen by the sharp eyes of chicken and profitably disposed of, they have no discrimination, like wild birds have, and they may be seen to swallow the gape worms that have been coughed up by others. These usually contain many ova, and when inside the chick find a suitable environment for development and so continue the vicious circle or cycle of life.

The helminthologist and the pathologist adopt a rather different classification from that of the average man, and refer to microscopic "parasites" where the layman would speak of them as germs. Thus the cases of coccidiosis would be deemed parasitic, and, indeed, are so. This explanation is given because many folks who read scientific reports are rather confused by the nomenclature, while those who try to write in an informative manner for the general reader are hampered by the fact that there are no alternative terms to those which science or science workers have provided. They are not meaningless but meaningfull, if analysed.

A member sent two chicks for examination to-day, and both were actually killed by parasites—the one macroscropic or easily visible to the naked eye, and the other microscopic or only visible by aid of powerful magnification. The latter was, however, quite as easily diagnosed by the destructive work performed in the liver; the former by nodules or eminences with inflamed areas in the gut, a particular portion of it most favoured by the "worms." The sender complained that his chicks did well up to a certain time, since when they had in many cases faded away, and the two sent did not die off like those he had lost by pneumonia. Development was arrested. The food consumed was wasted. These may be taken as typical examples of the hindrances to success which too often escape the observation of rearers. The first had a minute form of tapeworm which has a preference for the caeca, or blind guts, as those branches are commonly called. There were countless nodules which were formerly mistaken for those of tuberculosis, a disease by the way very rarely found in young chicks. These had become so numerous and injurious to the tender intestine that the inflammatory action extended to the outer investing membrane (peritoneum) and caused peritonitis or inflammation of the belly, the bowels becoming fixed to each other and to the gizzard and liver. In the coccidial case the secondary infection was so great that the liver was a mass of ulcers, like those of the advanced subjects among turkeys and from which the name of "turkey liver disease" was derived. It is now, alas! almost as prevalent among chicken as originally among turkeys.

Many chicks fade away without the liver being affected, but the evidence in the gut is present, and differs from that of B.W.D. in that it is in the majority of cases like soft cheese with or without a few small blood spots or staining at points. In a genuine case of B.W.D., by which I means a typical case, this part of the intestine is also involved, but it is more distended and with a more sanguineous substance, is frothy, and what look like rings of the windpipe appear. This is never seen in the coccidiosis infection. The diseased condition also extends in B.W.D. down the canal to its bulbous termination in the cloaca. I mentioned this in my notes on B.W.D. recently, and make no apology for repetition, as many of our members are doctors and very scientific persons, and to such as care to investigate for themselves it is a joy to offer any assistance on points which I have not seen mentioned by others in any of the published works. But "one never knows," and I wonder sometimes when, as in the cases above quoted, if I shall merely induce a fit of nausea or supply specimens of interest when I return the opened subjects for inspection, as was done in this instance. We are all apt to become obsessed with our own particular job, and it may be that I am. Lamenting my own ignorance, I am anxious to pass on what little my large opportunities enable me to pick up, and that I do not wish to pose as a high priest of science, and cannot tell correspondents how or why infection came into the world. If I speak of them as "nonconformists" (with the rules of the paper) it is not a lofty sacerdotal condemnation, but a modest entreaty to them to act in the best interests of themselves and of this Scientific Association in seeking knowledge that will benefit the industry in which we are all engaged.

Correspondence.

A FIRST-CROSS LAYING TEST.

To the Editor of "Eggs."

Dear Sir,—In your leading article in this week's (March 19th) "Eggs" under the above heading there are one or two points not easily appreciated by the layman.

I am concerned with your remarks that "cross breeding does not tend to breed improvement, but to the destruction of pedigree," and that "if we encourage cross breeding we discourage selective breeding *because there will be no object in practising it.*"

If, however, the proposed laying test provides data which *goes towards proving* that (*a*) the laying powers of the first cross are greater than selected strains, and (*b*) that the best cross of White Leghorn and Wyandotte, R.I.R. and Light Sussex *are from selected strains* (it would seem that such is Mr. Toovey's experience in these particular crosses), then selective breeding *will* be necessary to obtain the good first crosses desired and any improvement made in the pure would doubtless be apparent in the cross.

When the time comes that selective breeding fulfils the expectations of its supporters, then it will surely be the right moment to discourage the breeding of the first cross and adhere to the perfected pure only. In the meantime neither the breeders of selected strains nor the breeds themselves would suffer, so long as the demand exists from those breeding first crosses.

Yours faithfully,
"ONLOOKER."

INCUBATION.

To the Editor of "Eggs."

Dear Sir,—Much has been written recently in these columns on the question of moisture in incubators. I should like to give my methods of running a hot-air machine.

I get the machine running well at 103 degrees. After placing the egg tray filled with eggs into the machine I leave the flap, or door, of the machine open for eight to twelve hours, which method I find does away with addled eggs. I have tried this several times this season and last, and found it a great success. I never cool the eggs, but turn them four times a day. I run them for the first fourteen days without moisture, and on the fifteenth day I fill the two side trays (or whatever trays are fitted to the machine) with *hot* water, and on the eighteenth day I take a fairly large sponge, soak it well in hot water, and then stand it in a fairly deep saucer and place it in the nursery drawer. That amount of moisture is kept up till hatching time. I think a very important point is always to use very hot water. It will send the damper of the machine up, but the temperature only rises about 10 degrees. The sponge is taken out before the chicks reach the nursery.

By running hot-air machines in this way I get very good hatches, and never more than 6 per cent. dead-in-shell.

Yours truly,
J. E. WARNE.

SICILIAN BUTTERCUPS.

To the Editor of "Eggs."

Sir,—As we are making an effort to bring the economic value of the Sicilian Buttercup more prominently before the British poultry-keepers, several influential members of the Sicilian Buttercup Club have offered to give a sitting of eggs from their best pens to each new member joining the club and paying his or her subscription to the Hon. Sec., viz., 7s. 6d. Altogether at the time of writing over thirty sittings have been promised by such well-known breeders as Major Morrison, D.S.O., President of the Club; Mrs. Colbeck, the Hon. Sec.; Messrs. Tom Scott and Co., Mrs. Sherston, Messrs. G. and V. Otley, and the writer. Any one of these sittings is likely to produce a potential bidder at the classic shows as well as demonstrate the real utility qualities of the breed.

The Club has magnificent challenge cups and gives silver spoons and cash as special prizes. No doubt this year there will be special prizes given at the principal shows for members who have joined the club in 1924 or even classes confined to them.

The Hon. Sec., to whom subscriptions should be sent and who will notify the donors of the eggs, is Mrs. Colbeck, Bayle Hall, Nr. Wakefield.

RICHARD TERROT,
Vice-President, The Sicilian Buttercup Club,
Burchett's Green, Midenhead.

A CONFESSION OF WEAKNESS, PROCRASTINATION AND A CHICK.

To the Editor of "Eggs."

Dear Mr. Newman,—Seeing the many interesting letters on Leg-weakness in "Eggs" lately, and, having suffered from it with some chicks in my first two batches, I thought perhaps your readers would be interested to hear how I cured a very bad case by mistake.

He was a little beauty, ten days old, bright of eye and tight in feather, and my heart sank as I saw him helpless on the floor. I picked him up to do the dreadful deed, but he cuddled confidently into my hand, and cocked a friendly eye at me, and instead I stuffed him into my pocket, and took him back to the house. He was deposited in the chick drawer of an empty compartment of the Stanworth Incubator for future slaughter, I having discovered pressing business elsewhere. When I next entered the room he loudly demanded food, and I, after severely muttering "kill him," gave him some. He slept peacefully that night on the wire tray above the water tray in the machine, and I came down next morning full of good intentions to really finish off the job this time. Once more his friendly eye and cheerful spirit under adversity conquered, and I weakly gave in, and fed him, seed mixture and skim milk.

He had become that dreadful thing on a professional farm—a pet chicken. The next day I noticed he was up on his legs, making valiant efforts to walk, and the next day he **was** walking. I began to get interested, and what thoughts of slaughter I still harboured were thankfully abandoned. He was important; he had become an experiment. This point I tried to make out to a cynical staff, had been my object all along. However, suffice it to say that in about a week the "experimental" chick was a complete cure, and was returned to his brethren, scratching and running about with the rest.

The point is that no special food was provided, no Marmite, or even green food; seed mixture and skim milk being all he had.

The cure must have been entirely effected by sleeping on the wire tray through which the air passed up from the bottom of the machine, over the water tray. Next year my early chicks, at least, will all have ventilated floors, with moisture provided in some shape or form, which has yet to be decided. My pet chick may yet prove himself a benefactor to his race, though he does not realise what part his cheery little spirit played in the cure (nor does he realise the expense I shall have to run to in following it out next season in overhauling the plant). Still that, I hope, will be money well spent.

Yours sincerely,
W. N. RANSFORD.

THE REARING OF TURKEYS.

To the Editor of "Eggs."

Dear Sir,—With the time of rearing turkeys and the annual anxiety it appears to cause in the public mind, may I suggest that the trouble is to be found in the advice one meets annually in print, namely: "Turkey eggs, of course, require longer cooling than hen's eggs." The turkey mother, even in mid-summer, does not believe in cooling her eggs.

Some 15 to 20 turkeys are allowed here each June to hatch and rear us poults, useful little birds from 8 to 12 lbs. at Xmas.

During the first week the turkey hen comes daily off her nest, covering the eggs before leaving; the next week she rises but seldom, and for the last fortnight she sits almost continuously, re-appearing thin and ravenous, but with all her chicks well on their legs, and giving no further trouble.

If those who hatch out under hens would keep a spare broody or two to slip on to the eggs while the other has her feed and dust, the difference in the poults would be noticeable, and save many disappointments.

Yours truly,
M. GRANT-PETERKIN.

FIRST CROSSES.

To the Editor of "Eggs."

Sir,—I am not prepared to publish my egg averages—in fact it would, owing to our methods, be difficult to give a true statement.

Egg averages, as a whole, are of course vital, but the egg average alone will by no means demonstrate the profit attained, as much depends upon the costs at which eggs are produced. When the pleasure, to which I am much looking forward, of your visit here matures, you shall see all the figures I have, even to balance sheets and trading accounts, but not for publication in detail.

As regards the question of type, what I mean is this. If you take a heavy breed hen, with good points, and mate her to a well-bred light cockerel, the result will be a good general-purpose bird, neither heavy nor light, but in almost every case, if not in every case, the characteristics of the sire will predominate. How would it be possible to mate the resultant first cross here? I cannot see, if she is mated to a light breed again, the cross would, in my judgment, be too light; if a heavy male were used we should get a coarse heavy type of bird not indicative of high productions. In all the thousands of first crosses we have now bred the male gives the predominate type, although colour varies greatly, the frame of the bird is characteristic of the male, although modified. I certainly do not agree that you destroy type when you mate two breeds. I have only used three varieties of males, the Houdan, White Leghorn, and the White Wyandotte. In all the results the characteristic of the male are unmistakable, but all the same, although what I am now about to say may appear contradictory, you do set up a new type of fowl, which, in my judgment is on the average far superior to the average pure-bred for utility purposes. I think it is very doubtful if that special type of utility stock could be preserved if breeding from first-crosses took place. I can fully endorse what you say about selective breeding, being alone responsible for the improvement in our stock, and that this has been essential to the existence of such an industry as commercial egg production. I expect we both mean selection by the trap-nest. I am sure that this selection of breeding stock must, if commercial poultry farming is to survive the severe economic competition of which there are signs already of a near approach, be persisted in. All I claim is that this selection of fecund pure-bred stock should be the work of the specialist, and that we can turn his efforts to better use by first crossing the results than we can by attempting to breed pure or, in other words, in-bred stock. Pedigree stock are in-bred, and I fail to see how they can be otherwise than in-bred, or that they would be any use for the purpose for which we want them if they were not in-bred. The fact is, dear Mr. Editor, the tendency of your thoughts is in the direction of science and theory. The direction of mine is in the way of practise, in the way of handling and managing thousands of birds, many of which I have probably never set eyes on. As all practise is in the first place based on theory, even breeding first-cross poultry, those whom you represent, and those whom I represent, should be the complement of each other.

Yours faithfully,
T. W. TOOVEY.

BREEDING FROM HEAVY PRODUCERS.

To the Editor of "Eggs."

Dear Sir,—Having seen Mr. P. B. Adam's letter in "Eggs" of March 12th on the heavy layer as a breeder, may I say that my experience with these birds has been very different from his. We have "individually" bred from special hens, all high-record birds, for the last nine years with excellent results, the chicks being hardy, very easy to rear, and proving in their turn splendid layers and vigorous sires. Only two pens in all this time were bad hatchers, both having exceptionally hard and porcelain-like shells. I cannot remember a single high-record hen which has bred as weakly chicks.

Now as to the 300-egg hens, these are no myth, but a fact. We, ourselves, possess two which laid respectively 303 and 314 in twelve months, and nine others which took a week or two over the year before completing 300, and this out of only about 700 head of adult stock.

All are big vigorous hens fed and reared on Mr. Newman's formulas. We are getting fine, sturdy chicks from them, which receive no special attention, and are reared with the ordinary stock, nearly all of which are from 240 record birds upwards. Take two hens to give definite facts. One, "Pensford Promise," would undoubtedly have laid 600 eggs in two years but for an accident to her leg, which stopped her at 590. She did 295 in twelve months, and carried on, laying 365 eggs in fifteen months. We set the last few of these eggs, and hatched four splendid chicks on January 30th, 1923. She moulted for six weeks, and then laid 225 in nine months, and is now going strong in her third year. Of the four chicks two were cockerels and two pullets. One of the former is about the finest we have on the place, a big solid, upstanding bird, siring splendid chicks this season, and winner of several prizes at Utility Shows. The two pullets started laying in mid-July, and their records up to January are 140 and 143. The later pullets are all doing first-class records. The cockerels were beauties, and there were no losses, and no special treatment. Take another hen, record 724 in three years—one of her 1923 cockerels weighed 7 lbs., others 6 and 6½ lbs. Her daughters are very big and splendid layers of large eggs, and are also proving themselves good breeders.

I could give more facts if space permitted, all proving that these birds, given the right treatment and environment, are splendid breeders as well as the ones which deliver the goods and fill the egg basket to overflowing.

Yours truly,
W. M. RANSFORD (MISS).

CHICK MORTALITY.

To the Editor of "Eggs."

Dear Sir,—With you, I hope that your Editorial article on "Chick Mortality" will lead to a healthy debate on a subject which is second to none in importance so far as the poultry industry is concerned. Without a reasonably high percentage of chicks reared to maturity no poultry farm can hope for success, for, even though large numbers of chicks may be eventually reared, their ultimate vigour and value will to a great extent inversely correspond with the proportion of their broodmates which succumbed to rearing troubles in the first few days.

Mr. Meeking's recent article on the subject is most interesting, and I quite agree with him in thinking that feeding is not at the root of most rearing troubles; fowls are omnivorous animals, and given proper conditions they will survive the most unorthodox dietary provided they are not over-fed.

I should like to suggest one point, which, to my mind, is of great importance in chick rearing, and which I do not remember ever having seen insisted upon in any treatise on the subject. That point is the darkness and rest for the first twenty-four hours. The mother hen insists on this, and after hatching her brood she remains always for one and often two whole days brooding her chicks without moving. That this is a very strong instinct I have proved to my own satisfaction, for, although I never set hens on eggs, I make a regular practice of brooding incubator chicks under hens, and have constant opportunities for studying their methods. As I rear a considerable number of chicks, I have to rely primarily on artificial brooding, but whenever I have a few broodies, when an incubator is due to hatch, I always make use of them. Even if a hen has only been broody for a few days, when a brood of incubator chicks is given to her, so strong is her instinct that she will remain covering them often for two whole days before attempting to get up, because instinct tells her that what a chick needs most after the exhaustion, inseparable from the act of hatching, is complete rest until it has absorbed the yolk of the egg, on which Nature intends it to subsist until the need for outside food arises.

Most incubator nursery trays and most brooders provide neither the necessary darkness nor the incentive to absolute rest, and the best way I know of to supply these requirements, in cases where the chicks have eventually to be transferred to artificial brooders, is to keep them for forty-eight hours in small cardboard boxes, with no artificial heat at all, such as are sold for the despatch of day-old chicks. I have occasionally kept them in these boxes for seventy-two hours, but I find that after about forty-eight hours they begin to get restless and hungry, and are apt to trample on one another. Needless to say the floor of the box should be covered with felt, suitable litter, such as straw chaff, being placed on the top of it. If the floor is not covered with felt the chicks slip about on the cardboard and do not rest so well.

I find a most marked difference, not only in the appearance but also in the demeanour of the chicks thus allowed to rest and dry off in comparatively natural surroundings as compared with that of chicks transferred direct from incubator to brooder. The down of the former always strikes me as much smoother and silkier than that of chicks transferred direct to a brooder, and further, they are far wilder when placed eventually in the brooder than the others, a peculiarity which suggests to me that their vitality has not been sapped by the restlessness induced by the light which is inseparable from so many makes of brooder.

I personally welcome a first appearance of wildness and timidity in newly-hatched chicks; experience has shown me that the timid chicks who rush to a corner, or squat motionless when one inspects them, like young pheasants, turn out the strongest birds, and I have come to associate extreme tameness in the early days of a chick's life with low vitality. Of course, this timidity only lasts for a day or so, after which the chicks acquire that embarrassing tameness that makes care necessary not to step on them at feeding time.

I hope that these remarks will not lead anyone to think, through my reference to day-old chick boxes, that I ever send chicks away by rail—I only use the boxes for the purpose of getting the chicks thoroughly and more or less naturally dried and rested before putting them into artificial brooders.

I find the 24-chick size box the best; 12 chicks do not generate enough warmth, while boxes containing more than 24 result often in all the chicks collecting in one part of the box.

Yours truly,

ROBERT C. B. LETHBRIDGE.

VENTILATION (I.)

(With Special Reference to Carbon-Dioxide)

By G. V. HOTBLACK, M.A.

In the previous correspondence in "Eggs" on the subject of ventilation, no mention appears to have been made of the exact nature of some of the poisonous gases which must be eliminated from brooders, and incidentally from all fowl-houses.

It has been freely stated that leg-weakness, in some cases, and other ill-effects, are due to unsatisfactory ventilation. Whether this is so in the case of leg-weakness, I am not in a position to judge, because I have no large brooders, and have no cases of leg-weakness, but it is obvious that the removal of poisonous gases and an adequate supply of fresh and pure air are essential for chicks and adult stock.

The presence of poisonous gases undoubtedly tends to lower vitality, and so pave the way for various ailments.

As this is the case, it is obvious that it is very important to have some knowledge of the gases we wish to eliminate.

Carbon-Dioxide or Carbonic Acid Gas is normally present in the proportion of three parts in ten thousand of air. If the proportion rises to one per thousand, headaches and depressing effects are produced in the human being. All living creatures breathe in air, which consists roughly of one part Oxygen, and four parts Nitrogen, this latter gas serves to dilute the Oxygen, which is used up by the body, and an equivalent quantity of Carbon-Dioxide is exhaled. It is often assumed that the excess of Carbon-Dioxide rises with the heated air, and passes out through the ventilation holes at the top of the brooders and openings at the top of fowl-houses.

This cannot be the case because its vapour density is 22, whereas that of air is under 15; in other words, Carbon-Dioxide is about 1½ times heavier than air, and, therefore, tends to sink to the bottom of all buildings. In this fact probably lies the explanation of the good results obtained when chicks are made to sleep on netting or battens under a hover. The excess of Carbon-Dioxide sinks through the netting, etc., to the ground.

Certain organisms in the soil absorb this gas; hence the good effects obtained by putting fresh earth on brooder floors. Where this is not practicable, fresh lime can be placed **below** the brooder floor to absorb this gas. One ounce of quick lime will absorb nearly 40 pints of this gas.

I have not actually kept chicks on earth mixed with lime, but my observations lead me to believe that no harmful effect could be produced, and, using a spadeful of lime to a barrowful of earth, would enormously increase its power of absorbing Carbon-Dioxide.

Charcoal will absorb nearly two hundred times its own volume of this gas. Other substances could be used, but the cheapest is lime, and its presence in the soil is valuable in the garden.

This gas is also produced when oil, gas or coal is burnt, but it is carried clear of chicks when a chimney is used. A room is kept free from excess of Carbon-Dioxide by the draught when a fire is burning near the floor level.

Other **heavy organic poisonous gases** are also exhaled and exuded by chicks and fowls, and these also can only be removed from the ground level. This also indicates the necessity of adequate floor ventilation. These gases will be blown clear by floor draughts, but this method, though prevalent in some brooders, produces other evils in the form of chills.

I am convinced from experiment and observation that some of the brooders I have seen and used succeed in raising chicks in spite of their faulty methods of ventilation, and by virtue of the constant and unnecessary opening of doors by anxious attendants.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time This is due to the alterations in the postal delivery times

We would therefore request that Copy should be posted not later than Thursday.

THE VALUE OF ORGANIC IRON IN POULTRY

By C. E. B. PHILCOX.

In a recent article appearing in "Eggs," I dealt with the avoidance of leg-weakness and pneumonia in chicks reared under Anthracite stoves, but there is another aspect of the matter. Do we provide the parent stock with **enough organic iron** to ensure the getting of strong and hardy offsprings?

I am not a Chemist or a Scientist in even a modest way, but I think I am correct in saying that there are two forms of iron—Inorganic and Organic. The former is, of course, present in many forms, such as sulphate of iron in inanimate matter. Organic iron is necessary for both human life as well as that of both birds and animals. Haemoglobin is a case in point.

In my article on leg-weakness in chicks I mentioned how eagerly the chicks, when I put the clean, fresh earth into the brooder house—pecked over the soil for minute particles which they scratched and foraged about for hours on end. The same can be tested by digging up a piece of garden ground, and watching the effect. **These are Nature's lessons to man, and we must learn what she has to teach.** Now by close observation I've noticed that a brood that has had access to fresh soil periodically has thrived much better than one that has not. Surely some of these particles that are only observable to the chicks' eyes are those which contain this organic iron that the chicks **instinctively know** they are in need of. I maintain that it is **not** only the insect life and larvae that they are after. One way of supplying this organic iron is by feeding green foods which are known to contain it. I can give an instance of this from my own experience. Last year I sowed a lot of spinach beet in my vegetable garden, and this plot furnished me with an endless supply of green tops—very succulent if fed young and quite fresh. This vegetable contains, I am told, a very high percentage of iron, and my flock of growing pullets were even eager for it, and devoured an immense quantity. Likewise, I also grew a good deal of lettuce, which is also in a lesser degree, I believe, a container of a percentage of iron. These birds grew on at a great rate, and have never autumn-moulted, though hatched in early February. They started laying in the first week of September, and have kept is up right away without a single check, and are at top production still. In nearly 30 years of poultry-keeping I've never had birds hatched so early—**of any breed**—that have put up records like these have. What has opened my eyes is the fact that, owing to a very severe winter here on this cold clay, there has been for the past month not a leaf of any fresh green available, and the grass is seared to such an extent that at present there is little Spring tilth of young shoots; swedes and mangolds are very scarce, too. How have they maintained this record unless their early feeding gave them the required extra stamina? Moreover, during one bad spell of wet weather in November it was next to impossible to keep their litter dry, and yet they laid through it all. Many birds would have contracted bad colds or worse. They are a mixed flock of Light Sussex and Rhode Island Reds of really good strains, and have been fed on Mr. Newman's formulas from the time they were hatched. I have kept the most careful records of every egg laid by them. They are semi-intensively kept, and the runs are bare earth—when they are dry enough to use. Grass has to be cut from my lawn if they get any. There are 32 of these pullets, and I will give their records from September, as I think they are, under the prevailing conditions, very good:—

1923.	No. Eggs.	lay-ing.	Aver-age.
September, weather bad	403	18	22.38
October, good weather	312	20	15.60
November, very wet	487	24	20.29
December, cold and wet	536	24	22.33
1924.			
January, rain, with frosts and snow	670	32	20.93
February, dry and frosty	567	32	17.71
March (to 18th), very cold east winds and frosts	488		
Total: 3,463.			

I have given the weather conditions each month to show what they have had to face. Only 18 were laying in September, 20 in October, and 24 were in full lay by November. The other eight being a little backward, did not start till the beginning of the second week in January, and these will be culled out later, though laying fairly well now. The average for the 18 days of March works out at 15.25, and on five days out of the 18 I've picked up 30 eggs. I don't claim that this is extraordinary, **but it is highly consistent,** and 16 birds are in one pen together—all Light Sussex. Only five Sussex were broody—all in February, which accounts for the lower average for that month, and four went "clucky" in October for a week or two. During the wet and cold weather kibbled maize has always represented 50 per cent. of my corn feed with 50 per cent. best white oats. **Iron and fats** are essential **to the heavy layer.** These birds have been weighed each month to see if they keep up their average weight, and up to the present there is on an average a loss of about 3ozs. per bird right through the flock. The Sussex have lost more weight than the Reds, the latter keeping almost normal. Directly I notice a drop in weight they get a higher percentage (slightly) of meat meal, and a scratch feed of kibbled maize only at noon. I can tell readers of "Eggs" that all this has entailed very hard work, but I feel repaid, as I have gained knowledge of my birds, which I could not obtain in any other way. To pick up a bird or two out of a pen and handle it, and clap it in a pair of scales will tell an intelligent poultry-man how to regulate his diet. One more point, and I've done. Though laying so heavily, the Reds have **not yet shown any loss of the yellow** pigment in their legs, which generally pales in heavy layers. Is this the result of an "iron menu" in chicken good? I wonder? It is feasible, **as the presence of iron in the blood of man** generally shows itself in glossy hair and bright eyes, and a general appearance of health. I hope some of the more clever readers of "Eggs," who have the advantage of a knowledge of chemistry, will help us. A fellow like myself, without that knowledge, may err just when he is on the right track for want of it. Perhaps Colonel Hardy will criticise my theory. By-the-way, watercress is a great iron-container. Could not this be dried like alfalfa, and used in our rearing mashes? Here's an idea for our food specialists.

I trust this article will help our great industry.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

"Jock" (Chester). The best time to toe-punch chickens is when they have been hatched about forty-eight hours. There is no need to dress with any antiseptic, but it would be necessary to examine the chicks three or four days later to see that the holes have not closed up.

"Chicken" (Bonnybridge). You say that whenever a cold wind starts to blow your birds go off laying and catch colds. This is largely a question of ventilation, and you do not mention how this is carried out in your house. I note it is only 4 ft. 9 in. at the back, and the question is whether, as you would not have back ventilation, the birds are sleeping in a "pocket of bad air," the perch being too near the roof. If that is not the case then there must be a draught. I am afraid I cannot tell you more from what you have written. You are one of the scores who have given up all other poultry papers for "Eggs." We receive several letters daily. The best proof of that is the very rapid increase in the circulation of our journal.

J. M. (Sheffield). As I have so repeatedly stated in these columns, when the buttermilk formula No. 4 was fed in the Wellingham experiments, the Marmite was diluted with sufficient water, poured over the buttermilk, and the whole incorporated in the middlings. The hopper of dry bran was always before the chicks.

E. R. (Horncastle). I would not advise you to transfer your mixed hens from wet mash to dry at this season of the year, such a change must always be made gradually, or else you will throw them right out of lay. The following is a good formula:—2 lbs. bran, 4 middlings, 1 each Sussex ground oats, maize meal and meat and bone meal, or fish meal. If you have plenty of milk mix the mash with this to a crumbly moist condition, and omit the fish meal or meat meal and bone meal. In addition, give them a good feed of equal parts kibbled maize, wheat and good white oats in the scratching litter. Please see reply to "Mrs. J. R." (Berwick) in last week's "Eggs," with regard to dry mash feeding. I do not think you can do better than feed your ducks for fattening than you are doing, but you might give biscuit meal, soaked in milk and dried off with ground oats, in the early stages, and equal parts of middlings, ground oats and barley meal, mixed with sour skim milk, would be better for fattening than barley alone.

E. V. D. (E. Lancs). You say that the expert who visited your farm and made post-mortem examination of the chicks said that they were not dying from Bacillary White Diarrhoea, nor were there any signs of pneumonia, but you do not agree with his diagnosis because the symptoms were those of B.W.D., more particularly the whitish discharge from the vent. I cannot understand why you have written to me, as I am not in a position to judge, but as the deaths did not begin until the ninth day I am inclined to think that your expert was right as to the B.W.D., and probably as to the pneumonia. Now how am I to answer your question as to what they did die from as it was not either of these troubles? I can only say what I think. Your brooder is one of those tin creations which are veritable death traps. They are badly ventilated, the atmosphere is very dry, and the lamp exhausts all the oxygen, consequently the chicks become debilitated; the bowels do not function properly, and the whitish discharge is from the kidneys. It may be true that there are no fumes in the brooder, but it is not a question of fumes. The best thing you can do is to get rid of the brooder. (2) Black Leghorn males mated to R.I. Red hens would make one of the best first crosses; the majority of the birds would be black, with some red in the hackles and flights.

Worried (Tyneside). Your feeding is correct, and it is not likely that the Black Leghorn pullets are in an overfat condition. The real cause of the shell-less eggs is that the birds are so wild, and you must forgive me if I tell you that this is solely due to your mismanagement. They are naturally a nervous breed, and you must learn to approach them quietly, and let them become thoroughly accustomed to you. You should not take so many friends to see them. That only means a depleted egg basket and shell-less eggs. (2) The sample of chick feed contains far too much millet and green pea. These are very indigestible, and should not be given to chicks.

Moisture (Worcester). The eggs had dried down too rapidly; the membranes were dry and tough. In future fill the moisture tray on the first day, and keep one felt in until the 19th day, and do not remove the other at all. There was nothing wrong with the stock birds; all the eggs contained chicks. (2) A very broody bird is not necessarily a bad layer. There have been pullets in the laying tests which have put up remarkably good records, and yet have been broody five or six times. Little research work has been done in this direction. We know that if we consistently select for heavy egg production, there is a corresponding decrease in broodiness. Some birds which have never been broody in their pullet year are often very broody when hens. A cross between Black Leghorn hens which had never shown any sign of broodiness, and a Minorca cockerel from a pen which had been equally free, produced a percentage of pullets which were broody several times. I would not breed from very broody birds. On the other hand, you must not expect too much. If you breed from the Red pullet which has never been broody, and mate her to the son of a non-broody hen, it is probable that a percentage of the pullets will be broody.

E. Baird (Cambridge). It would be much wiser if you sent the chicks to Capt. Leeney for post-mortem examination. As far as I can tell from the symptoms, the trouble is due to the excessive feeding of wheat and biscuit meal. This would explain the diarrhoea. The best thing you can do is to give them dry broad bran. Have this in a hopper always before them, and instead of giving them simply scalded biscuit meal, use one part biscuit meal and dry it off with two parts middlings. Give as much green food as possible, and replace the wheat with a good dry chick feed. Stop the boiled rice altogether, and add quarter part meat meal to the biscuit meal and middlings. (2) It would be too late to incubate Australorp eggs for winter egg production now, and they are not a very suitable breed for confined runs.

M. L. M. (Wilts). You could hatch Black or White Bresse any time during April, and they would lay in October. They mature quite as early as Leghorns. (2) Brown Leghorn males mated to White Leghorn hens would not give you chicks the sex of which you could tell by hatching. If you mated White Wyandottes to Brown Leghorn males, the pullet chicks would be Buff and the males White or Silver. (3) Meat and bone meal would serve the purpose equally as well as fish meal. (4) The sample of malt culms appears to have been in stock for some time, and its value has greatly deteriorated. I do not think it worth 6s. a cwt.

J. McL (Dublin). I think you must be mistaken when you say that a hard-shelled egg has dropped down to the abdominal cavity, and that the hen is still laying good eggs—five and sometimes six every week. I cannot tell you how such a thing could have happened, nor how it is possible to prevent it. I doubt whether the hen can be operated on, and the egg removed, because I still have some doubt as to whether the egg is there. You say that this complaint causes you more deaths than any other. Well, I would send this bird to an expert for post-mortem examination, to see what has actually occurred. Your feeding appears to be quite satisfactory, although it is a method seldom adopted, but as it has given you excellent results, I see no reason why I should advise you to change it.

A. R. (Boston). We cannot reply to non-members of the S.P.B.A. through the post. You will see the rule at the head of these columns. I have never yet heard of anyone rearing young turkeys on dry mash, and I am not sure that it could be done, although there seems no good reason why it should fail; but I do not care to advise you to try an experiment, as there may be some risk entailed, and should any loss arise, from any other cause it is possible that unthinking people might condemn dry mash feeding.

POST-MORTEMS.

F. J. D. One of the chicks had B.W.D. and the others pneumonia.

W. L. Internal haemorrhage was the cause of death. The organ was so degenerate that it simply fell to pieces.

F. W. (B'ham). The chicks had the infectious disease known as B.W.D. There was an article on the subject in "Eggs" of February 20th.

H. LEENEY.

THE LANCASHIRE UTILITY POULTRY SOCIETY.

INTERNATIONAL LAYING TEST, 1923-24.

Report of the Fifth Month—February 5th to March 3rd, 1924.

The fifth period of four weeks of the L.U.P.S. International Laying Test concluded on March 3rd.

The report for the fifth month is a very satisfactory one, considering the hard weather we have had.

The White Wyandottes continue to hold the premier place, whilst the pen of Buff Rocks maintain their good, consistent laying of a good-sized egg of good colour. The Rhode Island Reds on the whole have been rather disappointing, but have improved, and are now doing very well. The Light Sussex, Mendels and Barnevelders also are doing fairly well, the last-named laying a beautiful coloured egg of good size.

The White Leghorns, up to the present, have not done as well as might be expected, but have improved considerably during the latter part of the month, and are now laying well. Black and Brown Leghorns also are improving; Anconas are doing very well, as also are Exchequer Leghorns.

The following is a list of the leading pens and individual birds in each section for the number of eggs laid during the month:—

LARGE BREEDERS' SECTION.—10 Birds.

Pen No.	Owner and Breed.	Eggs.
8.	T. Ramsbottom, Samlesbury (W.W.)	204
9.	R. Rodwell, Nelson (W.W.)	204
5.	H. Gabbot, Little Hoole (W.W.)	197

SMALL BREEDERS' SECTION.—Five Birds.

Pen No.	Owner and Breed.	Eggs.
60.	G. W. Miller, Cottom (W.W.)	118
62.	J. and W. Purdie, Lanark (W.W.)	109
77.	C. F. Budd, Abergavenny (W.L.)	106

NOVICE SECTION.—Four Birds.

Pen No.	Owner and Breed.	Eggs.
162.	A. McDougle, Broughton (W.L.)	88
111.	G. E. Marsden, Lostock Hall (W.W.)	87
143.	T. Sharpe, Dumfrieshire (W.L.)	85
149.	A. V. Wallis, Oxon (W.L.)	85

SINGLE BIRD SECTION.

Pen No.	Owner and Breed.	Eggs.
979.	J. Crawford, Hurlford (W.W.)	23
996.	F. Portlock, Preston (W.W.)	23
1008.	J. Rainsford, Penwortham (R.I.R.)	23
1054.	H. Gabbot, Little Hoole (W.W.)	23
1030.	J. Rainsford, Penwortham (W.W.)	23
1032.	T. Rossall, Whittingham (W.W.)	23

Although four birds have died during the month there is no disease, nor are any birds on the sick list.

SUMMARY OF LEADING PENS.

HEAVY BREEDS.—SECTION 2: LARGE BREEDERS—Ten Pullets.

Pos.	Owner and Breed.	Eggs.
1.	R. Rodwell, Nelson (B.)	969
2.	W. Crabtree, Twiston (B.)	900
3.	H. Gabbott, Little Hoole (B.)	853
4.	J. R. Hull, Thornton-le-F. (C.)	730
5.	J. and W. Thompson, Inskip (B.)	793
6.	W. Rogers, Market Drayton (B.)	756

LIGHT BREEDS.—SECTION 1: LARGE BREEDERS—

Ten Pullets.

Pos.	Owner and Breed.	Eggs.
1.	G. B. Metcalfe, Lechdale (A.)	811
2.	F. Snowden, Cowling (A.)	800
3.	R. H. Aspden, Balladen (A.)	799
4.	A. R. Walmsley, Hollowforth (A.)	733
5.	C. H. Hollins, Chorley (A.)	732
6.	R. Rodwell, Nelson (A.)	744

HEAVY BREEDS.—SECTION 4: SMALL BREEDERS—

Five Pullets.

Pos.	Owner and Breed.	Eggs.
1.	J. E. Rossendale (B.)	466
2.	J. and W. Purdie, Lanark (B.)	485
3.	S. and J. Greenall, Carlton S. (B.)	399
4.	G. Sudell, Bartle (B.)	477
5.	E. Collier, Ingol. (B.)	395
6.	W. W. Clarkson, Haighton (B.)	367

LIGHT BREEDS.—SECTION 3: SMALL BREEDERS

Five Pullets.

Pos.	Owner and Breed.	Eggs.
1.	C. F. Budd, Abergavenny (A.)	462
2.	Capt. E. B. Johnston, Kingston H. (A.)	416
3.	Miss A. Paul, Coupar An. (A.)	417
4.	J. and W. Purdie, Lanark (A.)	404
5.	J. Ingham, Widnes (A.)	445
6.	B. Threfall, Churchtown (A.)	412

HEAVY BREEDS.—SECTION 6: OPEN—Single Bird.

Pos.	Owner and Breed.	Eggs.
1.	R. N. Cook, Tarleton (G.)	93
2.	J. Rainford, Penwortham (C.)	93
3.	J. Crawford, Hurlford (B.)	93
4.	R. Wright, Kirkburton (B.)	87
5.	Mrs. F. Cockshott, Skipton-in-C. (B.)	88
6.	C. H. Hollins, Chorley (B.)	86

LIGHT BREEDS.—SECTION 5: OPEN—Single Bird.

Pos.	Owner and Breed.	Eggs.
1.	A. V. Wallis, Oxon (A.)	89
2.	J. S. McCoomb, Bracknell (A.)	89
3.	J. Sutton, Much Hoole (A.)	90
4.	J. Rainford, Penwortham (A.)	86
5.	T. Atkinson, Burton-in-Lonsdale (A.)	84
6.	Capt. Gonne, Ringwood (A.)	78

HEAVY BREEDS.—SECTION 8: NOVICE BREEDERS—

Four Pullets.

Pos.	Owner and Breed.	Eggs.
1.	R. Mills, Penwortham (B.)	317
2.	C. H. Hollins, Chorley (B.)	307
3.	G. E. Marsden, Lostock Hall (B.)	314
4.	M. Tomlinson, Salwick (B.)	303
5.	W. Ronson, Preesall (B.)	305
6.	J. Halsall, Newton (C.)	300

LIGHT BREEDS.—SECTION 7: NOVICE BREEDERS—

Four Pullets.

Pos.	Owner and Breed.	Eggs.
1.	T. Sharpe, Dumfrieshire (A.)	353
2.	W. Winward, Bamber Bridge (A.)	329
3.	J. S. M'Coomb, Bracknell (A.)	298
4.	Mrs. Ormsby, Lisburn (A.)	291
5.	A. Barker, Much Hoole (A.)	284
6.	A. V. Wallis, Oxon (A.)	293

BREED AVERAGES AND SUMMARY.

Breed.	No. of birds entered.	Deaths.	Eggs laid.	Average.
White Leghorns	516	10	33483	64.89
White Wyandottes	329	4	22635	68.80
Rhode I. Reds	125	—	7396	59.15
Black Leghorns	56	1	3338	59.60
Anconas	24	1	1262	53.60
Light Sussex	19	—	865	45.55
Australorps	10	—	253	25.30
Exchequer Leghorns	6	—	282	47.0
Brown Leghorns	9	—	333	37.0
Barnevelders	10	—	293	29.30
Buff Rocks	12	—	944	78.66
Blue Mendels	4	—	156	39.0
Black Mendels	4	—	176	44.0

EAST ANGLIAN EGG LAYING TEST, 1923-1924.

Report for Fifth Month, 6th February to 4th March, 1924.

The leading pens at the end of the fifth month of the above test, which is organised by the North Essex Branch of the N.U.P.S., are as follows:—

SECTION 1.—White Leghorns.

Pos.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	Birmingham Industrial Co-operative Society, Ltd., P.F.	277	254
2.	J. W. Clayton	420	251
3.	Dale Egg Farm	290	250

SECTION 2.—Any other Non-Sitting Breed.

Pos.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	George R. Lloyd (Ancona)	196	192
2.	Miss E. Cavanagh (Ancona)	180	176
3.	E. Fearon (Black Leghorn)	253	173

SECTION 3.—White Wyandottes.

Pos.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	S. and T. Greenall	361	302
2.	E. Rodger	317	291
3.	A. Gawthropp	277	276

SECTION 4.—Rhode Island Reds.

Pos.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	Stewart and Allen	227	227
2.	H. Turner	284	215
3.	E. Fearon	246	198

SECTION 5.—Any Other Sitting Breed.

Pos.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	Thornlea Poultry Farm (Light Sussex)	271	271
2.	A. Smith Alborough (Light Sussex)	267	255
3.	J. D. Montgomerie (Buff Rocks)	238	238

SECTION 6.—Any Variety Light Breed (Amateur).

Pos.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	T. H. Atchison (White Leghorn)	71	64
2.	H. Farrant (White Leghorn)	100	59
3.	Miss R. M. Jackson (Noire du Berry)	25	25

SECTION 7.—Any Variety Heavy Breed (Amateur).

Pos.	Owner of Pen.	Total Eggs to Date.	Test Score Value.
1.	Mrs. W. F. Atkins (R.I.R.)	164	164
2.	Mrs. W. F. Atkins (W.W).	108	108
3.	G. Shenton (W.W.)	100	100

(NOTE.—Five pullets in Section 1-5, and Two pullets in Section 6 and 7 constitute a pen).

W. T. WILLIAMS, Hon. Sec.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

DISCOUNTS.

The "Henincubator" has aroused a good deal of interest amongst our readers. Mr. Peters, the inventor, has written to say that he will be pleased to allow a discount of 10 per cent. on all orders through the S.P.B.A.

Mr. H. Tate is supplying Hoppers, and is also allowing a discount of 10 per cent.

Will members please note that Mr. W. H. Colt is no longer on the list of firms granting discount to our members.

At the meeting of the National Poultry Council, to be held at the Harper-Adams' Agricultural College, Newport, Salop, on April 10th, Mr. Ernest Rhoades, Assistant Chief of the Poultry Division, Dominion Department of Agriculture, Ottawa, and Secretary of the Canadian National Poultry Council, has kindly promised to give an address on "The Canadian Records of Performances" in Laying Fowls. This subject is one of great importance and interest, and deserving the consideration of poultry breeders in this country. Mr. Rhoades arrived in this country on the 22nd inst., in connection with the World's Poultry Congress in Spain, and the British Exhibition at Wembley.

NOTTS EGG LAYING TEST.

Last week 829 eggs were laid in the test of the Notts Education Committee at Mapperley, this being a record for the 20 weeks, bringing the grand total up to 10,386 from 176 pullets. The pen section produced 707, the heavy breeds 66, and the light breeds 56. The score is now as follows:—

PEN TEST.

Owner and Breed.	Eggs.
Lady Seely, Sherwood (R.I.R.)	491
D. G. Deardon, Kirton (W.W.)	487
C. H. Allwood, Lound (W.L.)	443
G. L. Moore, Radcliffe-on-Trent (W.L.)	413
Mrs. Garner, Plumtree (W.W.)	434
Miss Burton, Norman Road, Thorneywood (W.L.) ...	457

HEAVY BREED SECTION.—Single Pullets.

Owner and Breed.	Eggs.
W. Litchfield, Toton (R.I.R.)	83
A and J. Crawford, Costock (W.W.)	83
F. Brooks, Calverton (R.I.R.)	85
V. C. P. Blake, Aslockton (W.W.)	63

LIGHT BREED SECTION.—Single Pullets.

Owner and Breed.	Eggs.
W. Asher, Edingley (W.L.)	100
V. C. P. Blake, Aslockton (W.L.)	82
A. and J E. Crawford, Costock (W.L.)	78
C. Barker, Laneham (W.L.)	76

Shire Hall, Nottingham, March 24th, 1924.

HANTS COUNTY LAYING TRIALS.

FARM INSTITUTE, SPARSHOLT, WINCHESTER.

Report for Fifth Period ending March 15th, 1924.

SECTION A.

Tem. Pos.	Owner and Breed.	Eggs laid 5th month	Eggs laid to date.	Total for Test.
1.	Mr. D. W. Gunston (W.L.) .	56	196	192
2.	Mr. R. McKenzie (W.L.) ...	76	202	187
3.	Mr. R. Hunter (W.L.) ...	61	201	175
4.	Mr. C. F. Rivaz (W.L.) ...	66	170	169
5.	Mr. S. Wilkinson (W.L.) ...	64	170	165
6.	Mr. D. F. Lawrence (W.L.)...	62	154	149
7.	Barford Poultry Farm (An.) ..	53	152	142
8.	Capt. Harper (B.L.)...	62	166	141

SECTION B.

Tem. Pos.	Owner and Breed.	Eggs laid 5th month	Eggs laid to date.	Total for Test.
1.	Mr. J. H. Thompson (W.W.).	82	284	248
2.	Capt Harper (R.I.R.)	62	241	238
3	Mr. S. Wilkinson (W.W.)	72	215	210
4.	Barford Poultry Farm (R.I.R.)	71	207	206
5.	Mrs. Drew (Buff Rock)	67	277	204
6.	Mr. D. W. Gunston (W.W.) .	82	225	181
7.	Miss C. Holmes (R.I.R.)	62	164	163
8.	Mr. D. F. Lawrence (R.I.R.)..	66	196	157

Only 80 Second Grade Eggs allowed to count in each pen.

CORRESPONDENCE—(Continued).

POULTRY PUZZLES.

PRIMITIVE METHODS AND POT POURRI.

To the Editor of "Eggs."

Dear Sir,—As a beginner, just taking the plunge into poultry farming after two or three seasons' practise, there are innumerable questions I should like to ask. Sometimes I think that there is nothing I would prefer to experience than to have the Editor of "Eggs" locked up in a room with me and forced to answer questions on poultry for an unlimited time. However many questions I might put to him, I should find at the end of the longest interview that I had forgotten ten times as many as I had remembered to ask. For the moment rearing takes a prominent position in my anxieties, and also in the weekly editions of "Eggs." First puzzle for your solution. On February 28th I received 200 D.O.C. from a breeder, prominent in the premier laying competitions, whose stock I started with two years ago, and have found satisfactory. The 200 arrived in the pink of condition to my eyes, and were distributed among three 6 x 4 houses with Pioneer hover in each, and houses raised 1 ft. off the ground—sawdust litter.

Beginning of March, 6 p.m., 8 were dead; 2nd, 4 more; 3rd, 5 more; 4th, 4 more; and up to the 17th day ones and twos; the death rate totalled 36. I am not complaining of the death rate, only writing for suggestions as to the future improvement. My first puzzle is that I could not spot those about to die, except in one or two cases. They simply were dead under the hover.

Second puzzle. Though the houses, their situation, treatment, etc., were apparently identical, the deaths were so unequally distributed. House "A" had about 25, "B" 9, and "C" 2 deaths. I did one day spot three or four off their legs in "C" where only two had died, and I immediately put fresh earth (this earth not renewed) in a panic under all the hovers. Hitherto I have reared entirely on sawdust litter, and, though I don't for a moment suggest it as the reason, the fact remains that I have on several occasions reared 63 and 64 chicks without losing one. However, I know enough not to claim that the sawdust had anything to do with it as far as I know. The next day, after putting the earth under the hovers, I could not discover those that were sprawling, and no death has occurred in that house since. Is it a fair answer that the majority of these deaths are unavoidable as far as my rearing arrangements are concerned?

Another puzzle. House "C" eats about 20 per cent. more than either "A" or "B," and do look slightly bigger than the rest, but they all look a decent lot. In my five seasons rearing I have been struck with the success of those chicks reared in home-made box brooders, and lamp and guard. Is it because they were so cool? I found it hard to keep the temperature up, and through inexperience the lamps were often blown out by draught from the door. I, of course, as I got keener, bought the most up-to-date rearer (a box and hover combined) advertised, and my experience was most unfortunate. I put the chicks in and followed the instructions of the makers, and they died four and six a night. It is always in the morning that I discover corpses. I halved the live ones in a box and lamp and not one died, yet the half in the professional brooder contained about four corpses each morning. I halved them again and the same result. Not one death among those removed to a box and lamp, till I got down to the last two, which I removed to a box, and one of these two did die in the box. I heard of a man who had exactly the same experience. I changed to hovers this year as I argued the chicks would spread out, and I have not found this to be so. To-night my hovers are so, and yet the chickens are decidedly bunched on the one side and not spread out round the whole hover. My box brooders generally showed them in a thin ring round the lamp. When one takes a good deal of trouble to learn the exact and best conditions for success, it is rather disconcerting to meet a man as I have this week, who bought an incubator at a sale and for two years has run it in a small room, about 12 x 12, where he works as a bootmaker, stone floor, and incubator in a corner against the wall, without even knowing that a Gloucester had such a thing as felts till I informed him. He runs the incubator at a regular temperature of 103, puts a tin dish of water in the chick drawer, and runs it continuously, putting the eggs in batches of 20, and as they hatch putting the chickens under hens. This man averaged 70 per cent. hatch all last year. I did a bare 60 per cent. This, by the way, is an example of positive evidence, there are too many writers in "Eggs" producing negative evidence which is of little value. Men write that they have done so and so, and never had any illness in their stock, but this is not of any value. I have smoked hard for years and never had smallpox, but I don't think smoking was the reason.

Finally I would ask for help to choose a good trapnest, and would much like to know where to buy decent wood for house building, and must endorse all you have written about maize, especially its use in enlarging the eggs of May. Last year I reared almost entirely on it, and the result was quite satisfactory, but again this is negative evidence, and I would not do it if I could avoid it. Have you declared against flint grit? I fancy I read somewhere that you disapproved of it. I should like to hear your opinion on the use of charcoal. Is it necessary? I think some time ago "Ex-Airman" wrote a letter making some useful suggestions. I would like to see an acre planned out just as a guide to proportions in starting.

Why is the Poultry-keeper's Income Tax to be different to other farmers? I started farming fourteen years ago, and have tried plough, milk, sheep and cattle, and finding poultry the least expensive have given up all except the poultry, and am rather worried to find that now I can make a small profit I shall have to pay on a different basis, as my profits come from feathers and not wool, or beef.

C. D. THOMSON.

DUCKS *v.* HENS.

To the Editor of "Eggs."

Dear Mr. Newman,—With regard to your Editorial in this week's (March 26th) issue, I am only able to answer your query about the large flock average of ducks partially at the moment, but I am referring to same in my article this week and giving the flock averages in the Bentley Test. The large flock there, comprising 265 birds, which are run together during the day, averaged 188.25 eggs per bird, the averages of the *breeds* in the large flock being: Khaki-Campbells, 211.25; Indian Runners, 171.56; any other breed, 163.88 per bird respectively. The other questions you raise are naturally very interesting to both present and future duck breeders, and I hope in my next week's notes to deal with the cost of feeding, and in a succeeding article with artificial hatching of duck eggs.

Yours faithfully,

A. HAROLD PAINE.

27th March, 1924.

POST-MORTEMS—Continued.

J. W. The chick examined had infectious pneumonia. There was 3d. to pay on your unstamped letter.

E. T. C. E. The chick had an embryonic liver, and the yolk was not being absorbed. There were no signs of infectious disease.

G. T. P. The R.I.R. pullet had chronic kidney disease and a degenerate liver. Necking is preferable as a method of killing when a post-mortem examination is required, as palate bleeding stains all the tissues and gets into the larynx, where one wants to look carefully for "dip."

C. O. (Oxon). The hen had heart disease (Angina pectoris).

S. T. R. Chilled and the yolk sacs dropsical, and so distended and pressing forward as to prevent respiration.

G. (Andover). The pullet had inflammation of the kidneys and the ovarium was dead, having the appearance of a bunch of black currants. Self-poisoning followed.

W. S. B. Two of the chicks had pneumonia, and the other only shared the general ill-thriving of all. When chicks a month old grow flight feathers and tails like these had done it is usually a nutritional defect, and it is to a change of food that I would direct your attention.

Jas. M. She was the victim of apoplexy. There was over an inch and a half of belly fat, and all the organs were impeded by fat. She was full of eggs, and would have laid in two days if she had lived. Please read the rules as to letters by post. If this had been an infectious case you would have been informed.

R. E. P. The chicks had brooder pneumonia (pneumomycosis).

A. H. T. It was a case of acute tuberculosis. You should apply to the Ministry of Agriculture for a free copy of Leaflet No. 78 and give it your careful consideration.

MIDLAND AGRICULTURAL AND DAIRY COLLEGE.

POULTRY CONFERENCE.

A Poultry Conference for the Poultry Instructors in the College area was held at the College on Wednesday last, and was attended by a large number of local residents.

F. W. Wait, Esq., of Burton Joyce, opened a discussion on "Present Methods of Rearing—Are they satisfactory?" At the outset Mr. Wait congratulated the college authorities on the plan and lay-out of the new poultry department which is being established at Sutton, and incidentally referred to the necessity for organisation of the industry regarding the collection and marketing of eggs, etc., in order to prevent the great disparity in prices which prevails in different parts of the country. He mentioned that, in his opinion, many of the small poultry-keepers in outlying districts did not obtain a proper market price for their produce.

Regarding the subject for discussion, Mr. Wait stated that it was difficult to give any definite answer to the question as results varied so much. Whilst it was easy to obtain particulars regarding favourable hatching and rearing, poultry-keepers were apt to be very reticent regarding their failures. In his opinion successful rearing is fundamental to success in poultry-keeping. He considered in this connection there are four main factors:

1. Inherited constitutional vigour.
2. Appliances.
3. Human element.
4. The weather.

Regarding No. 1, he was of opinion that high egg production is in many cases carried too far, and the question of stamina neglected. He was of opinion that proper incubation has an influence on the future health of the chickens, and that there is still considerable room for great improvement in the appliances for subsequent rearing.

He mentioned the importance of moisture in the hovers, and was of opinion that leg weakness was frequently due to the lack of moisture and the high temperature of the brooder.

Regarding feeding, he mentioned that there was no one system, though he himself preferred the dry mash. He advised poultry-keepers who are getting successful results with a particular system to adhere to it. He stated that he was of opinion that chicks might be left without food for a longer period than is customary at present to their advantage.

There was a very full and frank discussion lasting for about one hour, in which Messrs. Hearnshaw, Caseby, Atkinson, Watson, Read and many others took part.

Mr. Hearnshaw referred to the very considerable mortality in brooders, which appliances he contended might be considerably improved, and are at present, in his opinion much inferior to the hen.

Mr. Atkinson and other speakers referred to the importance of green food for chickens, and Mr. Caseby was of opinion that many rearers make the mistake of putting too many chickens of varied ages together. Mr. Watson considered that poultry-keepers considered themselves scientific, whereas, in his opinion, science and practical poultry-keeping were still too far apart. He instanced "dead-in-shell" and many other troubles which required thorough investigation.

The Principal of the College reported that he was arranging for a large Conference to be held at the College on Tuesday, September 23rd.

Notes on Utility Ducks.

By A. HAROLD PAINE.

I am dealing this week with comparative egg production of pullets and ducks, and I naturally refer to the Bentley Test for my figures. I have generally suggested that one may confidently expect an average of 200 eggs per bird per year from any breed of utility duck, and the figures given below certainly confirm that.

I am comparing eight pens of heavy breeds of pullets (White Wyandottes, Rhode Island Reds, and

Light Sussex) with eight pens of heavy breeds of ducks (Khaki-Campbells and Abacot Rangers), and eight pens of light breeds of pullets (White Leghorn and Black Leghorn) with what we may fairly term the light breed of ducks (Indian Runners). In the forty-four weeks Bentley Test, 1922-23, the leading thirty-two pens (five birds in each pen throughout) laid as follows:—

HEAVIES.

W.W.	1005.	K.C.	1350.
R.I.R.	997.	K.C.	1275.
R.I.R.	989.	K.C.	1261.
L.S.	986.	K.C.	1234.
L.S.	985.	K.C.	1228.
R.I.R.	972.	K.C.	1209.
R.I.R.	951.	K.C.	1199.
R.I.R.	944.	A.R.	1167.

LIGHTS.

W.L.	1103.	F.W.I.R.	1352.
	1092.	W.I.R.	1151.
	1077.	F. & W.I.R.	1132.
B.L.	1072.	,,	1115.
W.L.	1064.	,,	1075.
	1064.	,,	1071.
	1035.	,,	1059.
B.L.	1031.	,,	949.

A brief reference to the breed *averages* of the test shows that the White Leghorns led with 185.78 eggs per bird as compared with 227.73 and 211,25 for small and large flocks respectively of Khaki-Campbells, and taking the average of the whole test the pullets (66 different breeds) averaged 174.23 per bird, and the ducks (7 different breeds) 199.22 per bird.

In face of these figures I will leave it to my readers to decide whether in any of my notes I have ever overrated the value of the duck as an egg producer.

Now just a word about some private records, and I might say that I make no reference at any time to what birds on my own place have produced. The highest record reported to me last year was one of five Khaki-Campbells which produced in their first complete laying year as follows:—357, with a sequence of 252; 346, with a sequence of 217; 338, 319 and 291, giving a total of 1,651, being an average of 330 eggs per bird. The breeder of these birds has a sister duck in another pen with a sequence of 233 eggs, and other K.Cs. with individual records for last year of well over 300. Despite this heavy production, he has bred from the pen and finds that the progeny are as well grown and healthy as can be desired. A few other private records are as follows:—Three ducks hatched from one sitting produced 765 eggs in the year—an average of 255 eggs per bird. Another pen of five birds, without any particular selection, laid 1,164 eggs—an average of nearly 233 per bird. Five ducks were trap-nested from February to May 21st, a period of 110 days, during which they laid 547 eggs. Four K.C. ducks were recorded from the middle of October to the end of June, during which time they averaged 207 eggs per bird, but they then had to be mixed with other ducks, although they were still laying, so their full year's record was unknown. A breeding pen of *second-season* ducks produced up to the end of February as follows: 96 eggs in 97 days; 94 eggs in 97 days; 78 eggs in 79 days; 105 eggs in 127 days. Since that time I have heard nothing further about their performance.

It may be fair to compare these figures with those of pullets in our members' registered pens in the Register, and here again the comparison will, I think, be to the advantage of the duck.

It will be remembered that in my last article I stressed the value of the duck after its first and second seasons, and the correspondingly low cost of replacement of stock. Since then I have received the 1924 list of my friend, Mr. Oscar C. Brown, the K.C. specialist, who has done so much for the breed, and it is of particular interest to note that his special pen consists of three ducks, *seven years old this spring*, now in their sixth laying season, mated for the fifth consecutive year to the same drake. These three ducks have been the best layers Mr. Brown has ever possessed, and their autumn production, sleeping out of doors, has been most remarkable, especially in their second, fourth and fifth seasons. Not much cost of replacement here!

SCIENTIFIC POULTRY BREEDERS' ASSOC.

APPLICANTS FOR MEMBERSHIP.

Lane, Wm. L. T., Claverton, St. Helen's Down, Hastings.
Sargeant, Wyndham, The Glen, Rotherfield, Sussex.
Nicol, Mrs. E., Auchenzioch, Fordoun, N.B.
Murdock, Mrs. M., West Hallside, Hallside, Nr. Glasgow.
Butts, Mrs. P. L., Summerlands, Cranleigh, Surrey.
Parkinson, Miss P., 24, Forest Road, Kew Gardens, Surrey.
Dickson, W. H., Far Green, Hanley, Stoke-on-Trent.
Cornish, O. G., 87, Alma Street, Sheerness, Kent.
Woodward, A. E., Albamy House, Shaw Road, Bushbury, Nr. Wolverhampton.
Drake, Geo., Woodingdean, Rottingdean, Nr. Brighton.
Swaine, J. R., "Swainford," London Road, Billericay, Essex.
Pearce, Engineer, Capt. T., R.N., "Lamorna," Henley-on-Thames, Oxon.
Boland, Wm., Gozzards Ford, Abingdon, Berks.
Capt. H. St. G. Maxwell, Thebenton Grange, Leiston, Suffolk.
Canterbury, The Rt. Hon. The Viscount, Bergh Apton, Nr. Norwich.
Keogh, Mrs. E. C., Ahare, Inch, Co. Wexford.
Boevey, Maj. M. Crawley, Old Corner Hall, Hemel Hempstead, Herts.
Badley, Mrs. J. E., Chartners Farm, Hartfield, Sussex.
Diprose, F. W., 4, Agra Villas, Kingswear, Devon.
Ervin, J., Brick Cottage, Union Street, Charlestown, Shipley.
Pratt, Mrs. A. M., Haskins, Payhembury, Nr. Exeter.
Robinson, J. S., Worsley P.F., Charnock-Richard, Nr. Corley, Lancs.
Basley, Ernest, Mareham le Fen, Lincs.
Whalley, Horace, Whittles Farm, Fleet Street, Horwich, Bolton, Lancs.
Ker, Mrs. V. D., Heathgate, Bucklebury, Reading.
Fulford, R. F., Sluice Road, Denver, Downham, Norfolk.
Wilson, H. L., The Sutton Nurseries and P.F., Seaforth, Sussex.
Bruce, Mrs. W., Mereside Lodge, Gredington, Whitchurch, Salop.
Titchard, G. G., "The Dairy," Sankey, Warrington.
Bowman, Henry, Butts Ash P.F., Hythe, Southampton.
Bousfield, Maj. E., Oaklands, Idfield, Nr. Uckfield, Sussex.
Lord, Rev. E. F., Dingleside, Highfurlong, Little Carleton, Poulton-le-Fylde.
Loram, A. T., J.P., Rosamondford, Aylesbeare, Exeter, Devon.
Bess, Wm., Higher Metcombe, Tipton St. Johns, E. Devon.
Woodley, J.P., Higher Fluxton, Tipton St. Johns, E. Devon.
Dyer, F. J., Hylands, Broad Oak, West Hill, Ottery St. Mary, E. Devon.
Moore, Henry J., Broad Oak, West Hill, Ottery St. Mary, E. Devon.
Levick, A. N., 34, August Road, Tuebrook, Liverpool.
Clark, Miss M., Utopia, Upton Road, Moreton, Cheshire.

Colnett, Rev. E. T., M.A., Wellingale Spain Rectory, Ongar, Essex.
Erskine, E. M. A., 12, Broadwater Down, Tunbridge Wells.
Ordish, J. B., 24, Gateacre Street, Walney, Barrow-in-Furness.
Gordon, Mrs. A., Redstones, Langford, Somerset.
Hill, M. A., Harptree Court, East Harptree, Nr. Bristol.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING 28th MARCH, 1924.

GRAIN AND FEEDING STUFFS.—Only small quantities of English grain are offered for sale. English wheat remains in quiet request and quotations are again lower, but a stronger tone is apparent at Liverpool and London. Trade for malting barley is practically over, although an occasional parcel is purchased for seed purposes. Feeding barley and oats meet a quiet trade, and prices have an easier tendency.

All kinds of imported grain are in dull demand and cheaper, practically the only exception to the general decline being an advance of 4d. per cwt. in the price of maize in London.

British bran remains unchanged in value, averaging £8 4s. per ton, but middlings are cheaper, averaging £8 10s. per ton against £8 16s. last week. Meals meet a poor trade, with prices in some cases easier, while linseed cakes have experienced a further fall, 9 per cent. cake averaging £12 16s. per ton, a decline of over £1 per ton during the month. Egyptian seed cotton cakes are dearer, however, owing to the higher prices commanded by the raw material.

MILLERS' OFFALS.—Bran (British): Bristol, £9 2s.; Hull, £7 12s.; Liverpool, £8 10s.; London, £7 10s. Broad Bran: Bristol, £9 15s.; Hull, £9 2s.; London, £8 7s. Fine Middlings (Imported): London, £9 7s. Coarse Middlings (British): Bristol, £9 5s.; Hull, £8 5s.; Liverpool, £8 10s.; London, £8 2s. Pollards (Imported): Bristol, £8 2s.; Hull, £7; Liverpool, £7 5s.; London, £7 5s. Rice Bran: Bristol, £8; Liverpool, £7 15s.

MEAL.—Barley Meal: Bristol, £11; Hull, £10 10s.; London, £10 12s. Maize Meal: Bristol, £12; Hull, £11 5s.; Liverpool, £11 2s.; London, £11 15s. Maize Germ Meal: Bristol, £11 5s.; Hull, £10 10s.; London, £9 12s. Maize Gluten Feed: Bristol, £11; London, £9 7s. Locust Bean Meal: Bristol, £8 10s.; Hull, £8; Liverpool, £8 5s.; London, £8 5s. Bean Meal: Bristol, £13 10s.; Hull, £11 13s.; London, £13. Fish Meal: Bristol, £21; Hull, £20 10s.; Liverpool, £20 10s.; London, £20 10s.

EGGS AND DEAD POULTRY.

English eggs are plentiful and experience a quiet trade at less money, 1st quality averaging 13s. 6d. per 120 against 15s. 3d. a week ago. Imported new-laid eggs are in moderate supply, and are cheaper in sympathy with English. Home-produced poultry is scarce and in good demand, prices in London showing an advance; best quality chickens now average 1s. 9d. per lb. Week-end Prices.—Eggs (per 120): British, 14s., 13s.; Irish, 13s., 12s. 6d.; Danish, 16s., 14s. 6d.; Dutch, 15s. 9d., 13s.; Belgian, 14s. 6d., 13s. 6d.; Egyptian, 9s., 8s. 9d.; Moroccan, 10s. 6d., 10s.; Italian, 13s. 6d., 12s.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 1d., 1s. 11d.; Irish, 1s. 9d., 1s. 6d.; Others, 1s. 9d., 1s. 6d. Ducks, 2s. 2d. 1s. 9d.; Geese, 1s. 2d., 10d.; Turkeys, 1s. 7d., 1s. 3d.

EGGS.

Per Doz.—Ashford: First, 1s. 3d.; Second, 1s. 2d. Birmingham: First, 1s. 5½d.; Second, 1s. 4¼d. Carlisle: First, 1s. 2d. Chelmsford: First, 1s. 3½d.; Second, 1s. 1¾d. Denbigh: First, 1s.; Second, 11d. Derby: First, 1s. 6d. Dorchester: First, 1s. 1d. Exeter: First, 1s. 5d.; Second, 1s. 2d. Hereford: First, 1s. Hull: First, 1s. 3d. Ipswich: First, 1s. 6d.; Second, 1s. 3d. King's Lynn: First, 1s. 3d.; Second, 1s. Lincoln: First, 1s. 6d. Llandilo: First, 1s. 3d.; Second, 1s. Montgomery: First, 1s. Newport (Mon.): First, 1s. 4d.; Second, 1s. 3d. Norwich: First, 1s. 2d. Oswestry: First, 1s. 2d.; Second, 1s. 1d. Penzance: First, 1s. 1d.; Second, 1s. Salisbury: First, 1s. 1½d.; Second, 1s. Shrewsbury: First, 1s. 2d.; Second, 1s. Skipton: First, 1s. 8d. Truro: First, 1s. 1d. York: First, 1s. 6d.; Second, 1s. 4d.

FOWLS.

Per lb.—Birmingham: First, 1s. 6d.; Second, 9½d. Derby: First, *5s. 6d.; Second, *3s. 6d. Exeter: First, 1s. 7d. Hereford: First, 1s. 6d.; Second, 1s. 4d. Ipswich: First, 1s. 8d.; Second, 1s. 6d. Lincoln: First, *5s.; Second, *3s. 6d. Llandilo: First, 2s. 3d.; Second, 2s. Newport (Mon.): First, 1s. 7d.; Second, 1s. 4d. Shrewsbury: First, 1s. 8d.; Second, 1s. 6d. Truro: First, 1s. 3d. York: First, * 7s. 6d.; Second, *6s.

DUCKS.

Per lb.—Exeter: First, 1s. 6d. Llandilo: First, 2s. 3d.; Second, 2s.

* Per Head.

What our Readers and Advertisers think of "Eggs."

De Grey House, Garforth, Leeds.

"I am glad to say my trial advertisement in "Eggs" was highly satisfactory, as I sold the whole of the twenty pullets immediately. I am now enclosing an advertisement of Cockerels, which I hope will be as successful."

ALFRED HIRST.

"SOLD FIVE TIMES OVER."

Cot Poultry Farm, Hassocks Road,
Hurstpierpoint, Sussex.

"I shall be glad if you will withdraw my advertisement from the next edition of "EGGS" as I have **sold the articles five times over."**

B. S. LEESON.

EASTER HOLIDAYS, 1924

OWING to the EASTER Holidays, advertisements intended for our issue of 23rd April, must be received not later than FIRST POST Thursday morning, April 17th.

Classified Advertisements.

(PREPAID RATES.)

1d. per word—minimum charge. 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS, per line, extra 9d.
DAY-OLD CHICKS ,, ,, 1s.
DAY-OLD CHICKS ,, ,, 1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3 insertions for the price of 2
6 ,, ,, ,, 4
9 ,, ,, ,, 6
13 ,, ,, ,, 8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office

FIRST POST FRIDAYS

for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, **£8 15s. 6d.**; Half Page, **£4 7s. 9d.**; Quarter Page, **£2 5s. 0d.**; One Column, **£2 18s. 6d.**; Half Column, **£1 9s. 3d.**; Quarter Column, **14s. 6d.** One inch, **6s. 6d.** Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

PULLETS.

FOR SALE.

Light Sussex, February hatched Pullets, from Thomson's direct, gold medal competition strain; from 12s. 6d.—Mathison, Esless Hall, Wrexham.

January 9th, 1924, hatched, White Wyandotte Pullets, perfect; Barron's; 7s. 6d. each. — Chaplin, 1, Manor House Street, Peterborough.

WHITE AND BLACK LEGHORNS.

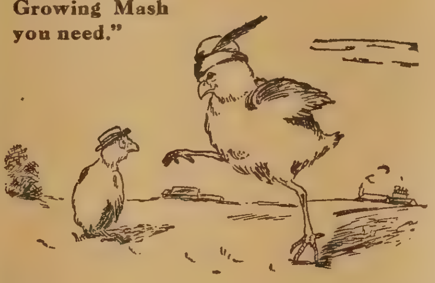
Wye College Winter Laying Test, just concluded. My pen of Four Black Leghorn Pullets secure first position. Specialities: Pens of six to 12 three months' old Pullets. The breeds most suitable for suburban dwellers. Young Cockerels, two months old individually bred from my Registered S.P.B.A. Pens. Send for Mating and Price List.—Captain Owen, Horeham Road, Sussex.

ERNEST ORR,

Brooklands, Redhill, Surrey. White Leghorns and R.I. Reds. Egg production and breed type. Pullets from flock awarded 1st and gold medal for best utility light breed at Crystal Palace, 1923. 1922 Hens, 8s.; Pullets, 10s. 6d.; Eggs, 7s. 6d. D.O.C. All by L2 stock. Inspection invited.

12.

"It's Ful-O-Pep Growing Mash you need."



ON right feeding **now** depends next winter's supply of eggs. Give the right nutriment and plenty of it. That is why the Ful-O-Pep Way of leaving Ful-O-Pep Growing Mash before the chicks **day and night** is so amazingly successful. It is also economical, as the chicks only **eat what they need and no more.**

The method of feeding could not be simpler. Tip out Ful-O-Pep Growing Mash from the bag into a low dish and leave it **day and night** before the chicks. Feed right and you will not lose your chicks, but will raise the finest flock you ever saw.

Take up in the palm of your hand the amount of a beakful — there lies every vegetable, animal and mineral requirement, in correct **not guesswork** proportions, just so mixed up together that **neither you nor your chicks** can tell which is which. Taste it. It almost "melts in the mouth!" No chick can get digestive troubles with a Mash so fine as this.

Most poultry keepers who feed Ful-O-Pep use a Ful-O-Pep All-age Self-feeder because they find it keeps the food clean and prevents waste, and because the special cut price at which it is sold makes it cheaper than using odd dishes. Ask your corn dealer.

Save time and loss by reading the chapter on chick raising in the Ful-O-Pep Monthly Guide sent FREE and postage paid. The Guide has illustration and full details of the All-age Self-feeder.

FUL-O-PEP GROWING MASH

NO MIXING; NO HEATING WATER; NO TROUBLE.

Guaranteed by QUAKER OATS Ltd., 11, Finsbury Sq., E.C.2.

PULLETS.

FOR SALE.

Eight Beautiful White Leghorn Pullets, hatched April, 1923; laying, 10s. 6d. each. Six Pure-bred White Leghorn Pullets, laying, hatched 1922, 8s. each; with cockerel, beautiful bird, 12s. 6d. Six Pure-bred White Wyandotte Pullets, laying, 1922. 8s. each; with cockerel, 10s. 6d. All splendid condition.—Greenaway, "Orwell," Hutton Mount, Shenfield, Essex.

125 White Wyandotte Pullets (Gunn-Wharton), February-March, 1923, in full lay, 10s. 6d. each; reduction on quantity. —Guild, Knoll Poultry Farm, Rockbeare, Devon.

Hobson's first prize Utility Black Minorcas, Laying Pullets, Cockerels, Eggs. —Hobson, Wrentnall House, Pulberbatch, Shrewsbury.

Ten extra good White Wyandotte Pullets, unbeatable layers; 7s. each. Grand Cockerels (Rodwell's); 12s. Seven grand Light Sussex Pullets, laying; 7s. each. Ten White Leghorn Pullets; 6s. each. Ten Black Leghorn Pullets; 6s. each. Twenty grand 1922 White Leghorn Pullets; 5s. each. Fifteen grand 1922 Ancona Pullets; 5s. each. Extra Dark Cockerel, 10s. Carriage paid. Satisfaction guaranteed.—Wilson, Poultry Farm, Barnoldswick.

Fifty Ancona Hens, hatched April, 1922; £25. Twenty Ancona Pullets, hatched April, 1923; £12 10s. All Charles Lawson's strain; splendid condition; layers 2oz. eggs. — Mrs. Poston, Temple Manor, Selborne, Hants.

SEX-LINKED DAY-OLD PULLETS.
R.I.R. x Columbian Wyandottes; 25s. doz. Eggs, 7s. 6d. per 15. Gold Medal Blood both sides. Catalogue free.—L. H. Waee, Kingsland P.F., Bridport.

BARNEY POULTRY FARM,
GUIST, NORFOLK.

Early Pullets, 3 months old, delivery April and May; White Leghorns, Wyandottes, R.I.R., Light Sussex; 7s. 6d. each. Cash with order.

1924 PULLETS.

White Leghorns; large-egg strain, all stock trap-nested; silver medal winners (highest pen of W.L.), W.S.P.S. Winter Laying Test. Pullets, Jan. hatched, from 7s. 6d.; later, from 5s. Also cockerels.—Hudson Bros., Chilworth Poultry Farm, Guildford.

MAJOR ROBERT LETHBRIDGE,
BROOMHILL, TIVERTON,

Offers Pedigree Rhode Islands Red, 1923 Pullets; splendid layers, by 302, 284, 291 egg males; 8s. each; to make room for 1924 stock. Orders booked for three months old pedigree Pullets. Delivery April onwards.

FOR IMMEDIATE DISPOSAL.
ENTIRE STOCK
W. LEGHORNS,
with winter records 41 to 72, all
CAREFULLY RECORDED
and rigorously culled. Barron-Pad. by Baldwin sires.
150—1923 **PULLETS,** 10s. each.
150—1922 **PULLETS.** 7s. 6d. each

No disease since established, 1913. Member S.P.B.A., 1915. Reduction on quantities.

PARSONS & SONS,
Ash, Surrey.

WHITE LEGHORNS (PADMAN)

February-March, 1923, from dams 180-250; sires from 250 dams for five generations. All L2 grand birds; full lay; 10s.—Commander Tippet, Goring Heath Pedigree Poultry Farm, Oxon.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, April 9th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

LEG WEAKNESS.

If we return again to the subject of "Leg Weakness," it is because of the importance of the article "Vitamins in Chick Rations," which appears in another part of this issue. It will be noted that Hart, Halpin, and Steenbock define it as a disease having the following symptoms:—

> Ruffled feathers, a tendency for the birds to isolate themselves, an unsteady gait, poor appetite, and an increasing tendency to squat on their haunches.

Herein lies the difficulty, for, as mentioned some weeks ago in "Eggs," it is difficult to say whether leg weakness is in itself a disease or but a symptom. Halpin is of opinion that it is a rachitic condition, and that it is prevented by the use of cod liver oil, but the danger lies here in assuming it to be due to a specific cause, when all the evidence indicates, as we have repeatedly stated in these columns, that it arises from many causes, and dozens of readers have reported that chicks that have had cod liver oil in the ration have suffered from leg weakness.

EMMETT and PEACOCK say that in chicks fed a vitamin fat soluble free ration its occurrence varies inversely with the age, and that they find it more prevalent in baby chicks 10 to 14 days old than those over 24 days old at the beginning of the experiment.

PLIMMER and ROSEDALE report that when fed a ration free from water soluble B vitamin leg weakness occurred.

In the paper we read at the Harper-Adams' conference last year we expressed the opinion that not 10 per cent. of the cases of leg weakness are directly attributable to dietetic causes. Further experience confirms this opinion.

It is safe to say that 90 per cent. of the cases of leg weakness which come under our notice occur between the ages of ten days and three weeks, and for this reason it seems improbable that they can be termed "deficiency diseases"—that is, caused by a deficiency of the vitamins A or B.

If we consider them up to three weeks, and remember that the yolk of the egg on which the chick partially subsists until the sixth day after hatching is rich in the vitamin A, and that this is sure to be supplemented to some extent by the supplied food, it seems hardly likely that the condition can be caused by a deficiency of this vitamin, for it is agreed that even in a diet totally free from the vitamin A existence is possible for many days without any of the symptoms generally attributed to its absence being apparent, and as the diet of most chicks would contain a percentage of yellow maize and a certain amount of fresh green food we can be almost certain that the percentage of leg weakness directly due to a deficiency of vitamin A is almost negligible, except in very exceptional cases where the birds are closely confined or the owners are very ignorant of nutrition.

Again, we may be almost certain that leg weakness, due to a deficiency of the water soluble B vitamin, is of very rare occurrence, for all the cereal grains are well supplied with this vitamin, and particularly the millers' offals, such as wheat, bran and middlings, which form a very large proportion of the total ration.

There is more frequently a deficiency of the calcium salts, and this may occur both in the diet of the breeding stock and in the food of the chicks. This may be easily remedied, and it is only when the birds are kept in confined runs that it is much in evidence if we except the tendency to soft bone in the case of the progeny of highly-fecund stock. Here, again, the evidence is to the effect that the trouble is due to a lack of the calcium salts rather than to a deficiency of the Vitamins A or B.

In the Wellingham experiments last year the only sign of leg weakness, if it could be called a sign, was the curiously stilted gait of some of the chicks in pen B. It was not very observable, and the only reason for referring to it is, that this was the only pen which had cod liver oil, certainly this was present in such a small quantity that it is doubtful if it had any effect, and the chicks possibly obtained all the fat soluble vitamin they required from the fresh green food, which was plentifully supplied from the fifth day.

In the experiments cited in the article mentioned above no case of leg weakness occurred, but we must not lose sight of the important fact that all the chicks were reared under hens, and leg weakness with hen-reared chicks is a comparatively rare event. It would be a grave mistake to be led away with the idea that any of the additions to the basal ration prevented this trouble. The basal ration itself was not deficient in any of the vitamins, and was well supplied with the calcium salts. One would have thought that the tomato juice would have caused digestive trouble owing to its acidity, and this seems to have been the case; in both experiments the addition of yeast proved advantageous. This cannot be attributed to the B vitamin, as the basal ration is in no way deficient in that respect. The real value lies in its all-round qualities, as an appetiser, tonic, good protein, and its power in assisting in the assimilation of other foods. We can congratulate ourselves on the fact that its value as a poultry food was first brought to the notice of the public in these columns.

We referred to the importance of this article. Our reason for doing so was that it appeared to give undue prominence to the vitamins or the ration fed to leg weakness, and if we are to eliminate this trouble it is of the utmost importance that we should approach it from another standpoint. It is possible to tell almost at a glance whether any particular poultry ration shows a deficiency of the vitamins A or B, or whether there is a lack of lime salts. Some few cases occur where leg weakness is due to too stimulating a diet, but these are rather rare, and it is to the brooder that we must devote our attention if we are to find a cure or preventive.

INCUBATION AND HIGH TEMPERATURES.

At the Blackpool meeting we were asked several questions on Incubation, although this was not the subject with which we were dealing. One of the audience expressed the opinion that if our advice was followed as to hatching at a high temperature during the first week of incubation, it would result in a large number of freak chicks. One, of course, does not give such advice without having practised it themselves. We should be a little bit afraid to do so, as it would be unpleasant to meet those who had taken it and failed afterwards, so it will be interesting to read the following letter received from Mr. E. J. Brooks, and we leave it to our members to make their own deductions:—

"Dear Sir,—From time to time I have sent you my observations on hatching, and this I do again, hoping that my amateurish remarks do not bore you.

I have noticed your often-repeated advice to begin the hatch at a high temperature, and this year I resolved to follow your advice. Of course, I was told that there would be broken yolks and other ills. I asked my critics if they had read Mr. Newman's remarks on the subject in 'Eggs.' This lead them to ask who Mr. Newman was, and what was the paper called 'Eggs,' with, I hope, good results to both.

Well, I tested all thermometers to find out the error of each, and when this was done each incubator was heated up and a record made as to what thermometer reading would maintain a clinical placed slightly below the level of the top of an egg at a temperature of not less than 100 deg. This looks like a lot of trouble, but it was done at a slack time of the year, and has been fully justified by results.

Needless to say there were no broken yolks, and the other ills did not materialise, even though the temperature was raised as fast as possible after the eggs were placed in the drawers.

My man generally places from 100-105 eggs in each incubator, and only those chicks considered good enough for the brooder house are counted as hatched.

The poorest hatch has been 75 chicks, but mostly they have run from 85-90. I think this is particularly good when you consider the very dry cold weather we have had since the first of February—this being the principal part of my hatching period. You will see from this that eggs addled and dead-in-shell have not been numerous. The chicks, also, are very strong, and though there are many hundreds not one has died from any cause but accident, such as crushing.

I believe there is a prevalent opinion in many parts that it is bad to give chicks water. Perhaps it would be injurious to give dead cold water to chicks just out of the incubator, but I cannot see that warm water can do any harm. My plan is to place a small glass fountain in each brooder as soon as the heat is got up, so that when the chicks are placed in the hot chamber they can get a drink, if they want it, of water at the same temperature as the surrounding air.

This year, having no young onions owing to the winter weather, I have doctored the water with a little Yadil. Possibly some of the credit for the health of the chicks should be put down to the use of this preparation.

There is another point I might mention. I have quite given up the use of chick food made up of a mixture of small seeds. I use in place of this pinhead oatmeal and kibbled wheat. I am sure the chicks are better on this, and it is much cheaper.—Yours truly, E. J. BROOK."

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

MR. TOOVEY'S LETTER.

I am sure most of my readers will have read Mr. Toovey's letter, which appeared in last week's issue, with considerable interest. He has very kindly replied to my question as to what he meant by "type" in a first cross. It will be remembered that he gave as his reason for not making a second cross, that he thought "it would tend to destroy type." My comment was that the first cross destroyed type, a sentiment with which he is not in agreement. However, I suppose this all depends on our definition of the word. In my humble opinion a first cross cannot possess any type but that of the cross; she cannot be typical of either because she has the characteristics of both, although she may have a greater resemblance to the one breed than the other. I don't quite agree with him that, if he did think of making a second cross, that if a heavy breed male was used we should necessarily get a coarse heavy type of bird. That must to a very great extent depend on the individuality of the bird which is used; but, apart from type, breeding from first crosses is not likely to be profitable as far as our present experience goes.

Neither do I agree that "pedigree stock is in-bred," or that it is necessary to in-breed to get heavy-producing strains. It is advisable not to breed outside the strain, but that is a very different thing to inbreeding, and if judiciously done will tend to conserve stamina. I must admit, however, that there has been a lot of injudicious breeding, which has been detrimental to our stock, and which has amounted to inbreeding. For egg production I think line-breeding and in-breeding are both mistaken policies, although, as I have said before, there are times when, provided that we have the right individuals, even such a close mating as brother and sister may be advantageous occasionally. And again, I cannot agree with Mr. Toovey that the tendency of my thoughts is in the direction of science and theory, although admittedly his are in the direction of practise. My thoughts are in the direction of the combination of science and practise, but I am looking forward to the visit to his farm with great pleasure, and it is sure to be most interesting.

In reply to "Onlooker's" letter, the point that I have tried to make is that we can easily obtain, by selective breeding, all that is claimed for the cross, and that selective breeding does tend to breed improvement if carried out on the proper lines—in fact, the perfection at which our present breeds have arrived has been directly due to selective breeding. I think it will take a great many laying competitions to prove that the first crosses are superior to the pures; witness the last North of Ireland competition, when the Wyandottes averaged over 200 eggs per bird.

A LANCASHIRE VISIT.

During the week I visited Preston and Blackpool, and lectured on Nutrition. A visit to Lancashire, especially such centres as Preston and Blackpool, is in itself an education, for nowhere will you find keener or more up-to-date breeders, and if you happen to start with an idea that what you don't know isn't worth knowing, you are likely to think on the return journey that a smaller size in hats will fit you. I was struck with the splendid organisation and the grand work that is being done by the Lancashire Federation, and the various societies connected with it; there would be no need to worry over the future of the industry in this country if every county was so admirably organised as the County Palatine. No reflection on others is intended, but Lancashire is an object-lesson. It may be that in some respects local conditions lend themselves better to organisation than elsewhere; but, if I may say so, they have a better grasp of the business side of the industry; every aspect of it is studied. There are the laying competitions and the shows, where the judges are practical men who have been handling trap-nested stock for years; there is the collective buying and selling, and the educational side is by no means neglected. I have already had one or two letters suggesting that the prevailing price of the new-laid egg is absolutely ruinous, and asking if I think it will drop still lower. Certainly I do think it will, and it's no good whining over it. The best thing we can do is to pickle as many eggs as we can afford to, and then endeavour to emulate Lancashire, and organise in every county.

I stayed with Mr. Hamnett, and went the round of his farm one morning. I am sure he would not be happy with only one breed. From the purely economic point of view, I believe it is better to specialise in one or two breeds at most, and it is certainly inadvisable for a novice to run more; but then Mr. Hamnett isn't a novice, and so he keeps several varieties, and manages to get on the top rung with all of them. He has Buff Rocks, Rhode Island Reds, White and Black Leghorns, White and Columbian Wyandottes, and Columbian Wyandotte bantams, and Light Sussex. Quite a big handful for any man to manage, especially when he has so many other activities, yet it would be difficult to find a better or more typical lot of stock on any utility farm in this country. He has won gold and silver and bronze medals in open twelve months' laying competitions with every breed he keeps, and he has been very successful both as a fancier and utility breeder at the various shows. Nearly all the houses on the farm are of the Lancashire cabin type, and there could be none more suitable for such an exposed position, but I was very interested in two new types, these were square, with louvre ventilation in the roof. They are light and well ventilated, and seem to have great possibilities. One thing I should like to be certain of, and that is as to whether ridge ventilation in these Lancashire cabins is really necessary; there is plenty of cubic air space without it. I see I omitted Anconas from Mr. Hamnett's breeds. He has a very fine lot of these, usually they are a very "nervy" breed and difficult to get near, but this was not the case. They lay a splendid egg, and have not lost in size on account of numbers. I think the favourites on the farm are the Columbian Wyandottes or the Buff Rocks, the latter took my eye; they are in great demand just now, and there is no doubt that they have a future before them.

A CORRECTION.

In our contemporary, "Poultry World," the following occurs:—"We are told that the Poultry Club, the N.U.P.S., and the S.P.B.A. are combining to protect their members in matters which affect their interests." It is necessary to contradict this most emphatically. All that has happened is, that the Hampshire Branch of the Poultry Club sent in the following resolution at the last meeting of the Council of the Poultry Club:—

> "That a permanent committee be formed comprised of members of the Poultry Club, and the N.U.P.S. and the S.P.B.A., with a view to immediate co-operation and joint action on any matter affecting all societies."

I have received a copy of this resolution from Mr. W. Rice, the Hon. Sec. of the Poultry Club, and it will be submitted to the Council at its next meeting on April the 2nd. It will be seen that the announcement in our contemporary is, to say the least of it, a little premature, as the Council of the S.P.B.A. had not even discussed it.

LATE HATCHING.

A reader writes questioning the soundness of the advice given not to hatch chicks of any breed for egg production after the first week in May. He says that, two years ago, owing to severe losses in rearing, he was compelled to hatch later than usual. White Leghorn chicks, hatched on June 1st, began laying on December 24th, continued until September the following year, when they moulted. The only trouble that he had was that the eggs were rather small.

I do not think that anything he has to say indicates that the advice given was unsound. One cannot of course lay down a hard and fast rule, but, in spite of the fact that his pullets laid until the following September, he has failed to show that they were profitable; and as they did not lay until the price of eggs was beginning to fall, it is difficult to see how they could have shown a profit, more particularly as it will be noticed that they did not begin to lay until nearly seven months old. This is rather extraordinary, as, although we know the later-hatched chicks take longer to mature, we do expect light breeds, if bred for egg production, to lay before they are seven months old. Another peculiar fact is the tendency of these later-hatched chicks to lay smaller eggs, in spite of their later maturity. My correspondent will see: (1) That his pullets took at least another month to mature; (2) they did not begin to lay until the price of eggs began to fall; (3) they laid smaller eggs; (4) they did not lay later in the year than the April-hatched pullets would have done.

He should remember, too, that when giving such advice it is impossible for me to base my judgment on specific cases. The question is asked me broadly, and in my experience it is not profitable to hatch after the first week in May, although one must recognise that it may be necessary to do so for a special reason.

It is not easy to explain why a May-hatched chick is not so thrifty as one hatched even a fortnight earlier; the general environment is, if anything, more favourable to the young chick. Opinions are divided. It is held by some that the male birds require a rest, but I have known male birds to be replaced with others which had not been previously mated, and the results are the same. My own belief is that after a spell of heavy egg production the egg is depleted of certain constituents which are essential to the development of a healthy and vigorous embryo. There is one other factor—those pullets which have not reached full development in the early autumn are, as a rule, undernourished during the short days. This might to some extent be overcome by the use of artificial light, and, indeed, it is probable that the chief value of artificial light will be found here.

SPRING PRODUCTION AND SELECTION.

A member who has not been able to trap-nest asks whether the present is a suitable time to select his best layers. He has 22 Black Leghorn pullets, which did well in November and December, but he has kept no actual record of eggs until last month, when the pullets averaged just over five eggs a week each. He will, of course, have to rely on the handling test, and if he follows the advice given in the "Handling and Observation" charts he should be able to make a good selection without much difficulty. There is little doubt that there is some correlation between the winter and spring production, a really good October and November layer will more often than not lay between five and six eggs a week during March and April, and very often will do much better than that. Some of the poor layers will have a fair capacity at this season, so too much reliance must not be placed on that. One of the best indications is the shank; in pullets which have laid heavily this will be found to be quite flat. This is some indication of what they have done, because it is due to the withdrawal of fat; in the poor layer the shanks will be found to be round, and a pullet with round shanks at this season as a rule will not have done much to fill the egg basket.

THE STANDARD UTILITY FOWL.

The Lancashire Federation has debated at its quarterly meeting the question of a standard for the utility fowl. The plea in favour of a standard is a reasonable one. The West Loughton Society's representative pointed out that birds which might win under some judges would not be looked at by others, and exhibitors felt there was need for guidance as to the type of birds which they should submit. That is the only real plea that can be made for a standard for utility poultry. There are ten sound arguments against it for every one which can be urged in its favour, and it is really astonishing to me that anyone who has trap-nested a flock of birds for even a few months cannot see the difficulties. As we have said numbers of times in "Eggs," you cannot judge a hen's productive powers with a tape measure. To hear some of the talk that is made, we are almost led to believe that a hen lays egg with her pelvics, or that she lays well because she has fine bone, rather than she has fine bone because she, or her dam and sire's dam, has laid well. Mr. J. Wrennall, the Chairman, said that "generally speaking the birds that succeeded in the show were not those which put up the best performance in the laying pen." That is perfectly true. We are often told that a pullet which has caught the judge's eye at many shows has put up a perfectly wonderful record, one which justifies the awards; but I must admit that I cannot always credit these marvellous tales, because most of us know that a pullet which is shown fairly often is not in a condition to lay; or, even supposing she is, we are apt to forget that temperament has its part to play, and the pullet which is handled by strangers, not all of whom know how to handle a bird, or prodded with judging stocks and sometimes walking sticks, are not likely to lay their 250 eggs in the year. There may be a few exceptions, but they will not be many. I wonder if some of those who are so eager for a standard were to draw one up and then test it on flock of their own pullets, how many they would find in a hundred which would conform to it, and whether, if they did, how many of these would be among the best producers? A standard was drawn up at the Harper-Adams' College some years ago, and it is by no means certain that it could be greatly improved on;

some of those who are so keen on the subject should give it a trial. If a standard is drawn up, what about eye colour for example? Is it to be definitely laid down that you shall not have a light-eyed Rhode Island Red? There are many people who believe that the light-eyed birds are the best layers, and, although I do not think that is so, we will suppose that the standard was light or red, breeders would be in difficulties either way, and that is one of the smallest difficulties they would be up against if a utility standard was adopted.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

G. M. R. (Carterton). The sample of meat and bone meal is excellent value at 17s. 6d. cwt. The maize germ is good average quality, but I think a little dear at 14s. The ground oats are very good value at 17s. The bran is not particularly good; it is too harsh. I should like to see a better sample at the price. The maize meal at 12s. is better value than the germ at 14s. The toppings are not good enough. You must get something with more of the flour in it; these contain a lot of ground-over bran. The fish meal is a good sample, but the meat and bone meal would be a much more economical feed. The alfalfa meal is just moderate, but I do not think you can afford to pay 17s. cwt for it. Dried yeast is a very good sample. Many thanks for your appreciation of "Eggs."

"A Beginner" (Bentley). I think, if you had read the "Answers to Queries," you must have seen how frequently bran is recommended. I must refer you to these in back copies of "Eggs," or else advise you to send for the pamphlet "Chicken Rearing," which will only cost you 6½d. I cannot tell you what quantity of grain a chick ought to eat per day. That is all a matter of observation, and you must learn that feeding is not a mechanical operation. Try and observe, and remember that a chick, like a baby, will require more food as it grows. No, it is not necessary to give 4 per cent. linseed meal in the mash for laying hens indefinitely. It would be helpful when the birds are moulting. It is not harmful to cut one wing of a Leghorn to prevent flying. The sample of sharps you send is just fair, but the bran is just horrible stuff, quite unfit for poultry feeding.

"Oakcroft" (Strouden). This is not a good sample of bran, and it contains a lot of oat husk and chaff. It is not good enough to use for young chicks.

C. W. S. (Market Drayton). Of the two samples of thirds you send No. 1 is slightly the better, but this appears to contain a good deal of ground-over bran. No. 2 sample of bran is rather the better, but it is nothing to write home about. All the other samples are good except the ground oats, which are not very suitable for poultry feeding. In fact, one wonders what is to be gained by grinding them. It would be better in this case to feed them whole. I am very pleased to hear you find "Eggs" of such value.

T. S. (Watford). You can obtain full particulars of dry mash feeding from the shell to maturity from these offices, price 6½d. The advice has been so frequently given in these columns that we cannot spare space to repeat it.

B. D. (Somerset). The sample of maize meal you send is a very good one. The middlings are really seconds flour; quite good, and I could recommend you to use them. Maize germ is prepared in a special way. It was only a few weeks ago I gave particulars in "Eggs" as to its preparation. It is really the by-product from the manufacture of starch from maize. I understand, too, there is another method now by which it is obtained by crushing. I believe limestone grit to be the best all-round thing for poultry. A good sample will supply all the carbonate of lime that is necessary. Flint grit is of no use at all, and likely to do more harm than good. Cockle shell is very good, but I should prefer the limestone.

H. K. (Little Lever). The sample of maize is quite sufficiently sprouted, but I am not sure that there is much to be gained in sprouting whole maize. It would be far better to feed it kibbled. Whole maize is rather an extravagant form of feeding.

C. M. G. (Hertford). If you follow the advice given you in our issue of March 26th there should certainly be some improvement in your stock. The mash which you have been feeding is altogether unsatisfactory. I doubt whether your birds are in an overfat condition. You had better ascertain that by handling them. Six inches of litter on the floor is not much for heavy birds, and, as you say it gets wet, heavy and solid, it is absolutely useless. You must not expect immediate results from the change of mash, but now you have the formula stick to it for some time, and you will find it much more economical than the one you have been using.

G. R. M. (Mon.). This question of spreading hot damp rag over the eggs near hatching time is one which must be most carefully considered by the operator in connection with his own particular conditions. In some cases it may do real harm; in others it may be advantageous. I could not possibly make any suggestions unless I knew the type of incubator you were using, and it would be advisable to consider what your percentage hatched have been before attempting to follow the advice given. It was only a few years ago that an American suggested that all eggs should be washed about the eighteenth day. He based this on his results, and some people who followed them in this country were successful, but in other cases they were not. All these questions must be considered by the individual and not be thought to be rule of thumb methods.

H. R. F. S. (Stibbington). After four weeks old the chicks may be given small wheat two parts, whole groats one part, and kibbled maize one part. You could put the birds on adult grain ration from ten to twelve weeks old. If you had read the formula carefully you would have seen that this was for forcing purposes only, and it would be extremely unadvisable to give it to young chicks. Follow the formula on page 13, and the directions will then apply.

J. L. S. (Burnley). You could use cod liver oil at the rate of one teaspoonful to the pound of mash. The following would be a good formula to use with the yeast:—4 measures middlings, 2 measures maize meal, 3 Sussex ground oats, half measure of the yeast, half measure of linseed meal, and half measure of meat and bone or fish meal. Mix one measure of this with three measures of broad bran and keep this in hoppers always before the chicks. At six weeks old reduce the proportion of bran to two measures. I do not think you will succeed in increasing the size of your birds on the food alone. You say you wish to do this without introducing fresh blood. The real point for you to make is careful selection. Be sure to avoid breeding from those birds which we will call "precocious" as apart from early maturity. It is no good attempting to increase size if you breed from stock which begins laying at four and a half to five months old. This early maturity is a matter of inheritance and not so much a matter of over-feeding.

A. L. M. S. (Sussex). I am afraid this is a case in which the stock birds have been at fault. Possibly owing to the extremely cold east winds we have had for the last few weeks. All the chicks died at a very early stage so that we can leave the question of moisture and excessive carbon-dioxide out of the question, and it really resolves itself into one of temperature or stock birds. I am confident that the question of moisture does not enter into this problem.

"Watson" (Liverpool). The sample of bran you send is of fair average quality. It is not broad bran and I should really like to see something better. At 10s. 6d. it is only moderate value.

"Windy" (Brockley). Ten or twelve eggs a day from 40 birds is not very good at this season of the year. You say "they all look splendid." I expect it is all a matter of condition; either they are too fat or not fat enough. However, you could try them on this mash:—2 lbs. bran, 4 middlings, 1 each maize meal, Sussex ground oats, and meat and bone meal. This will produce eggs and not fat. Also give them a small feed of grain in the litter as the first feed in the morning, open the hoppers at 9 o'clock, and give them the balance of the grain as the last feed. A good sample of alfalfa meal would be much better than clover meal. There is very little good clover meal on the market.

J. H. (Denton). The formula you are using will be quite suitable for summer. It is not a question of regulating the mash according to the seasons. A mash should be adjusted to meet the bird's requirements, as to whether she is laying heavily or not It is a great mistake to think that a bird necessarily wants a different mash in May than she does in December.

POST-MORTEMS.

Mrs. I. L. A very gross case of generalised tuberculosis, and a menace to the flock. In all probability the others which appeared to you to go the same way were victims of this infectious disease. The first to fail should be the subject of a post-mortem examination, instead of waiting until goaded by losses which might have been prevented. You should apply to the Ministry of Agriculture for a free copy of Leaflet No. 78, and give it your careful consideration.

I. H. One had pneumonia, one inflammation of the liver, and two peritonitis. All east wind cases, not infectious disease. Your letter was three days in coming from Northants (according to date), and the answer cannot be seen until next week.

G. E. S. The cockerel had a greatly dilated heart, which failed. He was in very poor condition, but had no other disease.

"Pines," Ferndown. One chick had pneumonia, and the other had been injured.

"K. K." My p.m. of the chick confirms your diagnosis of pneumonia from chill.

Mrs. E. M. The three R.I.R. chicks had inflamed crop and gizzard, caused by excessively large and sharp grit.

"M. P." Mortification of the cloaca following on gleet. You should make a very careful examination of every bird in association, and if there is a cockerel, isolate him, as the disease becomes infectious, if not already so. Some staining and stickiness should enable you to identify any that are affected.

G. C. C. No, this duck was not suffering from ovary trouble," but from duck septicaemia, which is an infectious disease, although its exact manner of communication is doubtful. Your other losses may be attributable to the same source. There was much enlargement of the pancreas, and the heart was big enough for a good-sized dog, and with many points of haemorrhage (punctiform).

E. S., Romily. Inflammation of the chest membranes and heart. The former was of some standing; the heart's conduct was a sympathetic strike, or spread from one series of membranes of the same class to another.

H. LEENEY.

Modern Poultry Feeding.

By *TOM NEWMAN.*

CHICKEN REARING EXPERIMENTS AT THE WELLINGHAM P.F., RINGMER.

My readers will remember that these experiments were projected in the autumn of last year, but through unforeseen circumstances, there has been unavoidable delay, and we were only to begin them with chicks hatched on February 29th. It should be here stated that these are all Light Sussex chicks, and were bred from the same flock, and are reared under the same conditions except as to the feeding. They were divided into three lots of 30 chicks each, when taken from the incubator. The fourth week was completed on March 28th, and so far the results compare favourably with those obtained last year. There is, however, one very important point to consider, and we must not lose sight of it if we make the comparison—that is, we are dealing with smaller numbers. The No. 1 experiment last year comprised 80 chicks. They had one advantage in being hatched eight weeks earlier than the present lot.

The following are the formulas being used:—

PEN A.

20 per cent.	Broad Bran.
50 ,,	Fine White Middlings.
10 ,,	Sussex Ground Oats.
15 ,,	Dried Skim Milk.
5 ,,	Soya Bean Meal.

Average weight, 4th week: 7.12.ozs.

PEN B.

20 per cent.	Broad Bran.
40 ,,	Fine White Middlings.
10 ,,	Sussex Ground Oats.
10 ,,	Rice Meal.
10 ,,	Dried Skim Milk.
5 ,,	Linseed Meal.
5 ,,	Fish Meal.

Average weight, 4th week: 6.8.ozs.

PEN C.

20 per cent.	Broad Bran.
40 ,,	Fine White Middlings.
10 ,,	Sussex Ground Oats.
10 ,,	Rice Meal.
5 ,,	Dried Skim Milk.
5 ,,	Dried Yeast.
5 ,,	Soya Bean Meal.

Average weight 4th week: 7.4ozs.

These are dry mashes always before the chicks after the fifth day; the grain feed is cooked flaked maize two parts, one each of kibbled wheat and split groats; but this is only fed as a scratch feed, and not as part of the ration. The parts are all by weight.

In last year's experiments the average weight of the chicks in the first experiment at four weeks was 7.500.ozs. These were fed on two-thirds oatmeal, and one-third buttermilk, with the addition of Marmite.

In the No. 2 experiment with 100 chicks, the average weight was 6.688ozs. at the end of the 4th week. In No. 3, 5.011ozs., and in No. 4, which gave the best results of the lot, 6.744ozs. However, these experiments were not instituted for the sake of making comparisons, but of finding out what would be the most economical and efficacious method of rearing chicks from the shell. I must frankly admit that my interest is centred in Pen C., and it is possible that when in the next experiments we try it with the addition of a salt mixture, the results will be even better, but it is early yet to comment on the results.

VITAMINS IN CHICK RATIONS.

WHAT IS LEG WEAKNESS?

By CHARLES W. KNOX and ALVIN R. LAMB,
Iowa State College.

Hart, Halpin and Steenbock in their earlier investigations defined leg weakness as a disease having the following symptoms: Ruffled feathers, a tendency for the birds to isolate themselves, an unsteady gait, poor appetite, and an increasing tendency to squat down on the haunches.

Halpin, in correspondence, states that it is his opinion that leg-weakness is a rachitic condition, and that it is prevented by the use of cod liver oil.

Emmet and Peacock state that the occurrence of leg weakness in chicks fed a fat soluble vitamin-free ration varies inversely with the age. That is, the disease is more prevalent in baby chicks, 10 to 14 days old, than those over 24 days, at the beginning of the experiment.

Plimmer and Rosedale reported that when they fed a ration free from water soluble B that leg weakness occurred.

The idea of leg weakness in chickens, held by the present writer, is that it may result from a number of causes. In some cases it is apparently a nervous condition which results in a lack of co-ordination in the muscles of the legs. In other cases it is due to poor development of bone, which may be referable to the ration, which may in some cases be corrected by feeding bone meal, and which may possibly be a rachitic condition. In still other cases it may be merely a symptom of a disease or a general condition of malnutrition—in other words merely a sick chicken. In our opinion leg weakness is not a specific thing in chickens referable to a definite deficiency in the ration, but is a general symptom caused by any one of various disorders, such as is a headache in the human family.

THE EFFECT OF VITAMINS ON THE GROWTH OF CHICKS FED A NORMAL RATION.

From the foregoing statements it might be assumed that chicks need the vitamins A and B, and possibly the anti-rachitic vitamin, and that they are not susceptible to scurvy, and would thrive on rations lacking vitamin C.

All of the rations cited above were deficient in one factor or another, and the results are generally interpreted in the light of analogy to mammalian experiments. This must be done with caution, since there are so few data on the vitamin requirements of chicks either on synthetic rations, or what may be described as normal rations.

Hart, Halpin and Steenbock state that "the corn grain fortified only with its endosperm proteins and calcium carbonate suffices for growth and the continued maintenance of this species. It is apparent that the corn kernel can supply adequately the vitamin demands (both fat soluble and water soluble) of growing and reproducing chickens."

Mitchell, Kendall and Card conclude: "From the recent experimental work here reviewed, it appears that rations ordinarily fed to chickens on the farm would probably not be deficient in vitamin B, consisting as they do largely of mixtures of whole cereal seeds. The possibility of a deficiency of vitamin A and C in such rations appears to exist."

Hart, Halpin and Steenbock reported that a ration of corn and skimmed milk, *ad libitum*, contained sufficient amounts of vitamin B and C for good growth and continued well-being.

It appears to be the consensus of opinion that the only vitamins probably lacking from the normal ration are the fat soluble A and possibly the anti-rachitic vitamin.

It was with the purpose of studying the growth of young chicks on a ration such as is used under practical conditions and to try the efficacy of additions of the ration carrying vitamins that the work here described was begun. It was intended to determine the possible defects in a typical ration under conditions which would eliminate unknown factors as far as possible, consistent with an approximation of practical conditions.

METHOD OF PROCEDURE.

Groups of 20 Single-Comb White Leghorn chicks four days old were confined in pens two feet by three feet. At one end of this run was a house two feet square in which the setting hen was confined and the chicks could run back and forth. Oat straw was sparingly used as litter, and sand furnished as grit.

All of the chicks were given a basal ration of scratch feed and mash. They were all fed in the same manner and at the same time. The mash fed wet and the additions that were added were mixed thoroughly in the mash. The chicks were fed equal amounts of grain and mash as nearly as possible. The basal ration consisted of the following:—

SCRATCH GRAIN.

50 lbs.	of finely ground corn.
25 lbs.	of cracked wheat.
25 lbs.	of rolled oats.

SALT MIXTURE.

60 gms.	dicalcium phosphate.
30 gms.	sodium chloride.
5 gms.	magnesium citrate.
5 gms.	monopotassium phosphate.

MASH.

32 lbs.	of wheat bran.
25 lbs.	of ground corn (yellow).
15 lbs.	of oat flour.
15 lbs.	of tankage.
10 lbs.	of alfalfa meal.
3 lbs.	of bone meal.
2 lbs.	of salt mixture.

The above ration was considered to be a normal one—that is, a ration which would satisfactorily grow chicks under conditions that might be acceptable to most poultrymen. The method of handling the chicks was one that would more nearly exclude outside sources of vitamins than the methods usually recommended for the best growth and well-being of chicks. In other words, they were allowed no range, and buttermilk was not fed, in the basal ration, as is quite common practice. The chicks were fed three times a day, receiving one-third of their grain ration in the morning, two-thirds at night, and the full allowance of mash at noon. This remained before them until their night feeding. Care was taken that no sunlight reached the mash.

These experiments were carried on during the summers of 1922 and 1923.

In 1922 six lots were used. These lots were put under setting hens which were removed at the end of six weeks. In order that the hen should not get any of the chick's feed, or the chicks any of the hen's feed, they were fed at the same time, the chicks being fed in the run and the hen given a handful of whole corn in the coop. The door was closed until the hen had consumed all of her feed, when it was opened and fastened in such a way that the chicks could run back and forth, but the hen could not get out. The fostermothers were fed only once a day, which was in the morning.

The lots were fed as follows:—

1. Control.

2. 10 per cent. buttermilk added to the basal ration.

3. 3 per cent. of cod liver oil added.

4. 5 per cent. of commercial compressed yeast (Fleishmann's).

5. The basal mash was heated to a temperature of 65 degrees C. for a period of 72 hours.

6. The same as Lot 5, plus 5 per cent. of strained canned tomato juice.

TABLE 1.—EXPERIMENT 1, 1922, 8 WEEKS.

Lot Number.	Weight of grain.	Weight of Mash.	Weight of addition.	Total Net Weights Eaten.	Average Weight of chicks. Beginning.	End.	Gram feed. per gram gain.
1. Control	386.0	281.5	—	757.	42.5	183.0	5.38
2. Buttermilk ...	424.0	419.5	84.0	843.	52.5	218.5	4.75
3. Cod liver oil...	370.0	365.0	22.0	713.	40.5	169.0	5.55
4. Yeast	408.5	404.0	40.6	812.	41.0	223.5	4.45
5. Heated	352.5	348.0	—	653.	42.5	130.0	7.46
6. do. plus tomato juice	359.0	354.5	35.7	696.	41.0	143.0	6.82

(To be Continued).

Correspondence.

DUCKS v. HENS.

To the Editor of "Eggs."

Dear Sir,—With reference to your Editorial on the question of Ducks *v.* Hens. There is no doubt that under certain conditions the duck is a paying proposition, but I fancy it is suffering from being overboomed, causing new fanciers to expect too much from their ducks.

It would appear that the Utility Duck Club management were of this opinion also, for in the current year book, there seems to be a note of warning in almost every article as the following list will show:—

(1) National Egg-Laying Test Report warns us against decrease in size of the duck egg, and the increase in disease amongst ducks.

(2) Mr. Barnes Reeve points out the impossibility of making a profit on young Runner drakes from a fattening point of view.

(3) Mr. Roscoe says ducks require 8 ozs. of food a day, and recommends 16 per cent. fish meal in the mash, and is satisfied with 50 per cent. egg yield, in winter, from a large flock.

(4) Mr. Drinkwater deals with the terrors of meningitis.

(5) Mr. Heseltine the irregular moult, and so on.

If we are to believe some writers in the Press, we should expect our ducks to eat almost nothing and lay about 320 eggs a year. Nothing is said about the difficulties of incubation and rearing, the trouble of cleaning the eggs, renewing litter in wet weather, risks of sudden drops in egg yield through frights, often followed by a moult, the number of buckets of water they require in hot weather, the fact that you cannot pickle duck eggs, the objections from the adjacent farmer if your ducks are on free range.

Egg Eating.—If the actual offender is known a change of house and companions for a couple of weeks or so will often effect a cure.

Both this year and last I found this method efficacious with four of my pullets.

LESLIE E. M. WHITBY.

EGG-EATING.

To the Editor of "Eggs."

Dear Sir,—With reference to your correspondent's complaint of egg-eating, I think one should study the cause of this bad habit. No doubt it is sometimes evilness on the part of the hen, but not always. During February I had to deal with the worst attack I have ever seen. My hens get limestone grit, and your formula is strictly followed. Before trying darkening the nests I watched carefully and saw the birds were more keen about the shell than merely sucking the eggs, so I gave them as much oyster shell as they could eat, and the result is my egg yield has more than doubled (partly owing to the weather, of course), and not an egg is ever touched now. I believe that any shortage of water or droughty weather induces them to *suck* eggs, and after a long period of heavy laying they require an extra dose of shell-forming material in the shape of oyster shell.

One seldom sees egg-eating in pullets in the commencement of their laying career.

Yours faithfully,

"OBSERVER."

STABILITY OF EGG PRICES.

To the Editor of "Eggs."

Dear Sir,—In reply to Mr. Knowles. As I have produced both milk and eggs, I know the difference between milk and milk, and eggs and eggs. *Milk should be* up to a standard—but is it? There is such a thing as dried milk as well as dried eggs. I have tried out all Mr. Knowles' methods to get more for our eggs—delivering twice weekly for instance, grading and cleaning (if necessary). I have tried them under various auctions. I have tried salesmen, but my conclusions are that, as with fruit grading, you get the same price for your trouble. Eggs collected once a fortnight fetch the same price as twice a week deliveries, with a guarantee not exceeding four days old!

I, too, have a story to tell. I went into a strange (to me) shop with some surplus eggs that a regular customer did not want. "Can you do with any eggs?" "What are they?" the lady replied. "Two-and-three," say I. "Oh! but look what I have just bought at one-and-nine!" "Yes, look at them—they ought to be put back and laid again." The lady took my eggs at 2s. 3d.

Something has got to be done, and if sold by weight would get over the difficulty (wholesale), then the shopkeeper could grade and price them per dozen as he wished.

Sale by weight is a matter that may be taken up seriously, as it would get over the difficulty of size, if not the freshness; that can only be a question of "making your name," and, like Mr. Knowles, I am very careful what goes from my place in my small way.

It is the varying price in the different towns—*vide* Lady Cheape's letter—*which* we want to prevent.

Supply and demand does not rule the price of milk exactly. Two powerful organisations do that. As Miss Stobart writes, the farmers' wives' methods of sale are "one of the flies in the ointment," but they can be got at with the assistance of the National Farmers' Union, if large producers in each county will approach their branches of the N.F.U. through some members of its Executive. As an ex-officio member of the Hereford Executive I will start the ball rolling in this county.

There is too large a margin (generally 6d. per dozen) between the small agricultural towns and the cities of large consumption—say ten miles away in these days of transit facilities.

The National Poultry Council was only too glad to associate itself with the N.F.U. on the question of Railway Rates last year, and some good was accomplished by the joint action.

If the leading poultry societies and the county clubs and associations will all move together some means may be formed of securing a mean price per month or fortnight for the producer, and a margin of a fair trading percentage between wholesale and retail prices, with the elimination of—well, "the man who would take the skin off a drumstick!"

Yours truly,

DOWDING POWELL.

THE GENUINE BREEDER FOR THE NOVICE.

To the Editor of "Eggs."

Dear Sir,—"H. R. L.," in his letter to "Eggs" for last week, seems to have been very unfortunate with his chicks purchased from "A Day-Old Merchant." These were probably hatched from eggs laid by too closely inbred stock, and such chicks never give much satisfaction to their owners, and even if reared beyond the brooder stage and up to maturity, are an everlasting trouble, for they are poor layers, and always ailing from something or other. But although he had such bad luck with his, it is only fair to say that quite strong healthy chicks can be bought in this way, although often their capacity as good producers is an unknown quantity until much later on.

In buying direct from the breeder the purchaser can generally rely on getting birds of good strain and laying capacity, because it does not pay the genuine man to keep second-rate stuff. He would not get a repeat order, and would soon have to close down.

"H. R. L." will be able to find plenty of reliable poultry breeders who would sell chicks to him for about the same price, or a little more than he paid to "Day-Old Merchant," viz., 15s. per dozen.

One must not expect tip-top quality at this price, of course, but it can be quite good enough for the "backyard poultry-keeper," who wants eggs for his own table, and be pure-bred stock at that.

But even supposing the chicks which he bought were not all they should have been, I think he made a bad mistake in putting 37 of them, the majority a heavy breed, into a 50-chick size brooder. An hundred-size would have given them a better chance of surviving.

There is considerable difference in the size of a light and heavy breed chick after about the first week, and the little ones soon become too closely penned up and overheated. This is a sure way of asking for trouble, and it is not long before it comes along.

But we have all got to buy our experience, and it is generally costly.

Beyond telling us what he fed the chicks on, he does not give much real information on this point, so that one could help him with any hints on feeding.

I suggest that digestive trouble and overheating from crowded brooding quarters have had much to do with "H. R. L.'s" losses this year.

Yours faithfully,

W. E. GRANT QUANTRILL.

To the Editor of "Eggs."

Dear Mr. Newman,—I was very much interested in the letter, signed "H. R. L." in this week's "Eggs," and can really sympathise with him. I have had some myself, and understand the feeling of "Done," which is sure to be running through "H. R. L.'s" mind.

Anyway, to get down to facts. I am prepared to give to "H. R. L." two dozen Black Leghorn eggs, from hens with records of 200 eggs and over in their first laying season, mated to a son of a 268-egg hen, on condition that he pays carriage, and returns the empty box. I am not going to guarantee him a 100 per cent. hatch, because I cannot get that myself. I am sorry I cannot let him have chickens just now as my plant is limited and fully booked up until the second or third week in May, but if he cares to wait until then, he can have one dozen chicks on the same conditions. I am not out for a free advert. in "Eggs," so will sign myself,

"A WOODEN 'UN."

TO READERS.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

MIRFIELD AND DISTRICT LAYING COMPETITION REPORT.

The fifth month of the test ended on the 16th March, and, considering the very adverse weather during the period, the egg output has been good.

The health of the flock is excellent.

LEADING SCORES.

LIGHT BREED SECTION.—Single Bird Test.

Pos.	Owner and Breed.	Score.
1.	Ledgard and Brown (W.L.)	99
2.	Sykes Bros. (W.L.)	70
3.	Tom Ashcroft (W.L.)	62*
4.	A. Blackburn (W.L.)	59
5.	J. A. Thackrah (B.L.)	58
6.	P. Taxton (W.L.)	55

HEAVY BREED SECTION.—Single Bird Test.

Pos.	Owner and Breed.	Score.
1.	A. Blackburn (W.W.)	75
2.	C. Whiteley (W.W.)	72
3.	A. Blackburn (W.W.)	70
4.	N. Firth (W.W.)	59
5.	Thos. E. Burnett (L. Sussex)	58*
6.	G. Brook (R.I.R.)	55

LIGHT BREED SECTION. PEN TEST. Three Birds).

Pos.	Owner and Breed.	Score.
1.	Norman Firth (W.L.)	161*
2.	Ledgard and Brown (W.L.)	150
3.	C. Killingbeck (W.L.)	122

HEAVY BREED SECTION. PEN TEST (Three Birds).

Pos.	Owner and Breed.	Score.
1.	W. Horsley (Buff Rocks)	151
2.	T. E. Burnett (Light Sussex)	125*
3.	P. Furness (R.I. Reds)	117

* Winners of Monthly Ribbons

LANCASHIRE POULTRY FEDERATIONS' COMPETITION.

EGG-LAYING TEST.

The report for the fifth month—February 10th to March 8th — in the Lancashire Federations of Utility Poultry Societies 12 months' egg-laying competition has just been issued by the Secretary, Mr. E. Collier.

The light breds are penned at Mr. H. Hayes' farm, Tottington, who has reported 20 deaths through severe colds, the weather conditions having been very severe. There are four birds still in hospital, otherwise the flock is now in fairly good health, and have shown a distinct improvement during the past fortnight.

The heavy breeds are penned at Mr. W. Hamnett's farm, Blackpool, who reports all birds in good health, the egg output in this section being quite satisfactory, especially considering the very severe weather during the month, frost having been registered on 21 out of the 28 days. During the month 25 birds in the large breeders' section have laid 20 eggs or over, 17 of them being Wyandottes and three Rhode Island Reds. Three Wyandottes in the single bird section have laid 20 eggs or over during the month. Eight Wyandottes in large section, two in single bird section, two R.I.R. in the large, and one in the single section have not laid during the month, whilst one Wyandotte has yet to lay her first egg. Five Wyandottes have laid over 100 eggs each in the 140 days, whilst one has laid 111, and one R.I.R. 115, this being the only Red over 100. Nine birds have been broody, and 11 birds are in partial or complete moult.

The scoring this month drops to four points for a first-grade egg of 2oz., and three points for a second-grade egg of 1¾oz. The positions are as follow, the figures showing number of eggs and points respectively:—

LARGE BREEDERS' SECTION.

LIGHT BREEDS (Three Birds).

Pos.	Owner of Pen.	Eggs.	Points.
1.	W. Braithwaite	170	941
x2.	S. Street-Porter	168	919
3.	R. Mills	160	898
4.	W. Barron	158	888
ax5.	J. Shaw	169	850
6.	R. Rodwell	150	825

WHITE WYANDOTTES.

Pos.	Owner of Pen.	Eggs.	Points.
1.	R. Moon and Son	260	1424
2.	W. Barron	280	1295
3.	R. Rodwell (1 b)	237	1290
a4.	T. Gardner	237	1240
5.	C. C. Humber (1 b)	222	1182
6.	H. Sutton	247	1171

A.O.V. HEAVY BREED.

Pos.	Owner and Breed.	Eggs.	Points.
1.	W. Wearden and Sons (R.I.R.)	250	1415
2.	T. Braithwaite (R.I.R.)	254	1249
3.	R. Green (R.I.R.)	228	1246
4.	J. Rainford (R.I.R.)	233	1165
5.	R. Moon and Sons (R.I.R.)	211	1109
a6.	Kay Diggle (R.I.R.)	194	1005

SMALL BREEDERS' SECTIONS (Single Birds).

LIGHT BREEDS.

Pos.	Owner of Pen.	Eggs.	Points.
1.	J Smith	49	274
2.	T. and H. Evans	47	267
3.	H. Tattersall	47	264
x4.	J. Higson	44	236
x5.	T. and H. Evans	39	222
6.	Mrs. J. A. Mellor	34	190

HEAVY BREEDS.

Pos.	Owner and Breed.	Eggs.	Points.
1.	W. Fletcher (W.W.)	102	522
2.	T. B. Price (L.S.)	70	382
3.	S. B. Lonsdale (W.W.)	63	329
4.	A. Spencer (W.W.)	78	322
5.	A. H. Brain (W.W.)	58	311
6.	Miss S. Cautley (L.S.)	63	303

b Broody, m moulting, x dead, a Bury members competing for their society's challenge cup.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

BRIGHTON STOCK TEST FOR FEBRUARY.

HEAVY BREEDS SECTION.

Competitor. No. of pullets and breed.	Score	Eggs. Ists.	Eggs. Under weight	Total score
R. Mummery (9) (W.W.)	71	118	22	588
W. F. Morris (12) (W.W.)	65	184	31	723
Countess Buxton (5) (W.W.)	38	101	4	337
Mrs. Crooks (4) (W.W.)	32	73	13	261
W. Crabtree (10) (W.W.)	61	189	27	694
Brighton (8) (W.W.)	57	97	13	539
Craig Gallon (8) (R.I.R.)	64	74	31	340
McLeod (9) (R.I.R.)	67	154	22	627
Mrs. Russell (6) (R.I.R.)	59	84	19	355
R. Saunders (7) (R.I.R.)	55	131	17	436
S. Simmins (10) (R.I.R.)	72	82	14	359
Capt. Woodford (14) (R.I.R.)	91	179	29	699
Capt. Tomlinson (9) (R.I.R.)	64	156	10	551
Miss Clark (10) (R.I.R.)	66	89	34	411

LIGHT BREEDS SECTION.

Competitor. No. of pullets and breed.	Score	Eggs. Ists.	Eggs. Under weight	Total score
Bradbury (14) (W.L.)	83	264	7	979
"B" (15) (W.L.)	93	174	35	815
E. Coles (10) (W.L.)	83	197	29	833
Chisbury Farm (17) (W.L.)	98	205	14	860
E. Street-Porter (18) (W.L.)	104	278	21	1059
B. Glendenning (17) (W.L.)	94	214	32	900
Mrs. H. Kent (13) (W.L.)	116	132	52	513
Sweet Escott (19) (W.L.)	115	229	31	889
David Brown (18) (W.L.)	115	234	26	888
Amsden Bros. (17) (W.L.)	102	249	37	997
D. Gunston (16) (W.L.)	91	254	11	1069
Miss Maddison (18) (W.L.)	121	172	67	672
Miss Ransford (14) (W.L.)	99	261	nil	879
Court Farm (17) (W.L.)	107	258	29	884
"W" (13) (W.L.)	83	192	32	788
Brown's Poultry Farm (9) (Anconas)	82	121	24	411
Mrs. A. Stuart (10) (B.L.)	68	153	27	476

JOHN H. DOWDEN, Heathfield.

YORKSHIRE LAYING TRIALS.

6th Monthly Report.

LARGE BREEDERS.

Pos.	Owner.	Eggs.	Score.
	White Wyandottes—		
1.	Frank Snowden	391	1956
2.	Rd. Rodwell	385	1769
3.	S. and T. Greenall	369	1699
4.	W. Crabtree	315	1293
	White Leghorns—		
1.	Rd. Rodwell	365	1839
2.	Fred Irvin	273	1367
3.	Maj. Disney Roebuck	263	1159
4.	E. Priestley	218	1050
	Rhode Island Reds—		
1.	Miss De Kitchin	262	1189
2.	Alderson Smith	224	932
3.	A. Gawthropp	225	899
	Sussex—		
1.	R. S. Williams	201	956
2.	Mrs. F. Cockshott	151	707
3.	H. D. Barley	179	697
	Black Leghorns—		
1.	Mrs. Paulet	284	1492
2.	Lord Dudley Gordon	216	870
3.	H. Smith	203	801
	A.O.V. Light—		
1.	C. Killingbeck	224	1008
2.	Ryhall Mill P.F.	203	718
3.	A. Gawthropp	100	442
	Australorps—		
1.	H. R. Parsons	143	617
2.	Australorps Farms, Ltd.	97	437
3.	Lady Walny Cohen	68	306
	A.O.V. Heavy...		
1.	H. Thomas	360	1760
2.	H. Holmes	181	874
3.	R. E. Gifford, M.A.	172	852

SMALL BREEDERS.

Pos.	Owner.	Eggs.	Score.
	White Wyandottes—		
1.	Chas. Lambert	151	802
2.	Frank Clark	111	584
3.	E. S. Sturdy	98	391
	White Leghorns—		
1.	F. C. Tomlinson	94	510
2.	J. H. Gundry	81	407
3.	S. Conyers	71	393
	A.O.V. Heavy—		
1.	Jas. Fawcett	87	442
2.	Mrs. W. Bamber	83	419
3.	W. C. Crossland	86	392
	A.O.V. Non-Sitting—		
1.	G. T. Marsden	58	346
2.	H. Helm	28	161
3.	W. G. Bullen	32	142

GIFT SECTION.

Pos.	Owner.	Eggs.	Score.
1.	Jesse Light	56	304
2.	H. D. Bailey	53	294
3.	Capt. Carswell	39	215

G. R. POOLE, Manager.

Utility Duck Club Notes.

By HUGH B. CARRINGTON.

It is an exceedingly busy time of the year, as all my readers know, and, therefore, I feel quite certain they will excuse me if my notes this month are somewhat late.

There is one point which is a constant source of worry to me, it seems impossible to get into touch with anything like enough duck-keepers. If any members of the Club will furnish me with the names and addresses of likely people, I will endeavour to write to them. Non-members, please start by writing to me yourselves.

My reason for the above remark is that in my already large post bag I have, during the last month, received a number of letters from people who have only just heard of the Club, and who write because they have got into trouble in some way or another about their ducks. There must be plenty more in the same boat, who, if they only knew of the Club, might possibly be saved a great deal of loss and worry.

Let me here once more mention the titles of the Club Instructive Leaflets which would be most useful at the present moment.

No. 1 on Artificial Incubation, No. 2 on Artificial Rearing, No. 6 on Feeding for Egg Production, No. 11 on Natural Incubation and Rearing. There are other articles dealing with similar subjects in the 1924 Year Book, and I have no hesitation in saying that readers will find the literature really valuable and helpful.

In my own experience I know one complete novice who had never handled a duckling before in his life, who has run an incubator with very considerable success, and reared a batch of ducklings through the perfectly horrible weather we have been having, without a single casualty. As the basis of his instruction he has had the principles laid down in the Club Leaflets.

Talking of artificial incubation, it is sometimes said that duck eggs will not hatch in incubators. To my mind this is a very sweeping statement; my experience is that certain breeds will hatch extremely well artificially. By way of experiment I set 14 eggs from one bird this season, and hatched 12. With small numbers of 7 or 8 eggs, from individual birds, I have had several "possibles." This does not look like bad hatching; still I do not recommend duckers to keep their eggs as long as that, it is not, in my opinion, good practice, though at this time of the year it appears to be pretty safe. But, and it is a very big BUT, the eggs must be carefully selected, and from birds in which you have complete confidence. Eggs from certain birds, while they will hatch perfectly under a hen will never hatch in an incubator. There was an exceedingly interesting article in the March 26th number of "Eggs" dealing with the effect of climatic conditions on incubation, the conclusions drawn were very interesting and valuable.

One interesting thing has happened on my own farm, about which readers may like to hear. Last season I bred a Khaki Duck from a particular bird. She has been trap-nested with her sisters ever since last autumn, but never an egg did she lay, though, like their dam, the others are really good layers. I was very much surprised, for I have never owned a barren duck before. However, I was still more surprised when a very peculiar change began to take place in her. To cut a long story short, she is becoming a Drake.

Perhaps some of my readers may smile, but I assure them I really do know a Duck from a Drake when I see one, and she was UNDOUBTEDLY a duck; gradually her plumage changed, and she has now grown a drake's little curly tail feathers, while her, its, or his head—it is rather difficult to use the correct pronoun—is becoming dark like that of a drake. The voice is still that of a duck, though a gradual hoarseness is becoming evident. At present she is known as the Druck, but, I should imagine, will ultimately become a full-grown male bird. Of course, I have heard of such things happening, but have never witnessed the metamorphosis before. Accounts of similar experiences would be interesting, and I should be very pleased to hear from anyone who has come across a case of this kind.

In the same number of "Eggs," referred to above, I note some interesting remarks by Mr. Harold Paine, comparing the cost of starting ducks and starting chickens. I believe the housing can be done even more economically than he mentions. I have on my own farm small houses to hold seven birds, built four years ago, made of Ruberoid on a framework of light wood, and they are still in use. I have also a shed nearly 100 ft. long by 18 ft. wide, built of the same material two years ago, and, in spite of all prophecies to the contrary, it is still going strong. The cost was £50, and it holds quite a large flock of ducks.

NOTTS EDUCATION COMMITTEE AND FILMS.

The Ministry of Agriculture's film on Poultry Farming in U.S.A. will be shown by Mr. C. A. Flatt and Mr. Caseby in the University College, Nottingham, on Monday, 7th April, at 7 p.m. All county poultry-keepers invited. Admission free.

Scientific Poultry Breeders' Association.

COUNCIL MEETING.

The monthly meeting of the Council was held at the Memorial Hall on Wednesday, April 2nd. Present:—Mr. J. G. Kitson (Chair), Mrs. Hunter, Miss Maddison, Mr. J. Smart, Mr. P. Hedworth Foulkes, Mr. E. J. Meekings, Mr. Bostock Smith, Mr. A. H. Paine, Mr. Lester Spurgeon, Mr. J. H. Dowden, and the Secretary.

Secretary's Report.—The Secretary reported that 141 new members had been elected during March. He had visited Preston and Blackpool, and lectured there on "Nutrition" to large audiences.

He read a resolution from the Secretary of the Poultry Club, expressing the appreciation of the Council's action in postponing the scheme for the Inspection and Registration of Poultry Farms, so that other societies might participate.

He reported that a meeting of the Preliminary Committee, appointed at the meeting of the representatives of the Poultry Club, N.U.P.S., and S.P.B.A., to consider the scheme, had been called for March 26th, and the representatives of the Poultry Club and N.U.P.S. had been duly notified. Major Potter, of the Poultry Club, had written to express his regret at his inability to attend. Mr. Broomhead, the second representative of the Poultry Club, had attended, but the representatives of the N.U.P.S. were absent, and so the meeting had to be abandoned. He had written to the Secretary of the N.U.P.S. asking for an explanation, and had been informed that Mr. L. Williams had telephoned that morning to say that he would be unable to be present, but nothing had been heard from Mr. Slade.

Mr. Foulkes pointed out that both he and Mr. Newman had come to town specially for the meeting, and it was a great waste of time and expense. He felt that as the Council of the S.P.B.A. had postponed the scheme in order to meet the views of the other societies, that their representatives should have been present, or at least have notified Mr. Newman of their inability to attend, as they had been given ample notice of the meeting. The matter was fully discussed, and the Secretary was instructed to write to the N.U.P.S. a letter expressing the feeling of the Council at the failure of their representatives to attend the meeting after the S.P.B.A. had gone so far as to postpone the scheme in order that they and other societies might participate in it.

The following letter from the Hon. Secretary of the Poultry Club was read:—

> "Dear Mr. Newman,—It was the unanimous decision of the Council that a permanent or standing Committee be formed of members of the S.P.B.A., N.U.P.S., and Poultry Club, so that matters of importance affecting all three societies might be discussed promptly.
>
> The idea commended itself to the Chairman of the N.U.P.S., who was present.
>
> The Council proposes to elect its members at the April meeting if you agree.
>
> Probably a Chairman, Secretary, and one other member of each Society might suffice.
>
> Yours truly,
>
> (Signed) WILLIAM RICE,
> Hon. Secretary."

The Secretary was instructed to send the following reply, the Council being of opinion that the existence of the National Poultry Council rendered the suggested committee unnecessary, as it would be but duplicating the work of the N.P.C.:—

> "Dear Mr. Rice,—With reference to yours of the 15th March. I submitted your Council's proposal: 'That a permanent or standing Committee be formed of members of the S.P.B.A., N.U.P.S., and the Poultry Club, so that matters of importance affecting all three societies might be discussed,' to my Council at its meeting yesterday. I am instructed to say that while we fully appreciate the motives which lead your Council to think such a committee desirable we feel that the National Poultry Council renders it quite unnecessary as matters affecting **all** societies can be discussed at the meetings of the N.P.C. I am, however, to add that my Council would be happy to confer with your representatives at any time on any specific point, which it would be to our mutual advantage to discuss."
>
> Yours very truly.

"Eggs" Committee Report.—The President reported that the circulation of "Eggs" still continued to rise, and he was again able to congratulate them on the satisfactory financial position.

Foods Committee Report.—The President, as Chairman of the Foods Committee, announced that the following proposals were recommended to the Council, the suggestions being that they should be published in "Eggs" in order to test the feelings of the members, and to see what support would be given to the proposal.

(1) Proposed to Register a Society for the provision of feeding stuffs, provided there is sufficient support from members of the S.P.B.A., who are willing to form branches in order that foods could be bought in bulk on most reasonable terms and distributed economically.

(2) It will be necessary for members in the various districts to form a committee for the management of the branch and to find a responsible person to act as Secretary, to whom orders would be sent, and he would forward them to the Secretary of the Company.

(3) The minimum quantity which could be supplied to any branch would be two tons.

(4) The branch would have to arrange the distribution to its members.

(5) The two-ton consignment may be made up of various foods.

(6) A weekly price list will be sent to each branch.

The Secretary was instructed to give publication to these proposals in "Eggs," and to request that any members who are willing to take up the work of forming branches should at once communicate with him so that the Council might consider whether they will be justified in carrying on with the proposals.

The Treasurer's Report was submitted in his absence, declared satisfactory, and adopted.

It was decided that the Council should not take space for a stand or exhibit at the British Empire Exhibition.

It was unanimously agreed that the June meeting of the Council should be held at Rudgwick.

The next meeting will be held on May 28th. The delay is due to the fact that many of the members of the Council will be attending the World's Poultry Congress at Barcelona.

In reference to the Foods Committee Report, members should understand that the branches can only be formed of members of the S.P.B.A. and non-members could not be supplied.

In order to comply with the Registrations Act, it would be necessary to form a small subsidiary company, but it does not follow that members who wish to participate in the benefits of the scheme would have to take shares. The company would only have to be formed to comply with the Act.

Marsh Daisies.

Note by FRANCIS J. HEMELRYK.

Vice-President, Marsh Daisy Club.

I feel some trepidation in following up Mr. Tom Newman's kind suggestion that I should tell the readers of "Eggs" something about this breed, the main reason being that I have a few pens of them, and consequently it might very justifiably be argued that self-advertisement was the "fons et origo" of my remarks.

I do disclaim the friendly accusation of the Editor that this breed is the "one and only." Far from it. There are plenty of grand breeds to be found in the old country without going abroad for something new, which many people do, and unload on a credulous public at a fancy price.

I do not claim that Marsh Daisies are THE BEST BIRDS for the small man or the poultry farmer, pace the pontifical assertions of some of the enthusiastic contributors to your always interesting columns, but I do claim that it is one of the best.

Do recent tests show that the popular breeds, as now bred by the big men, are producing the proper proportion of first-grade eggs? I suppose this comes from people endeavouring to breed from 300-egg birds, and nonsense of that sort.

The Marsh Daisy Club will tell you nothing blatant of that kind, but the experience of its members is that the Marsh Daisy, even as a pullet, does not lay a second-grade egg, unless very exceptionally. In fact it is only the late-hatched ones that do lay a somewhat small egg. I have only one pullet guilty of this offence, a May '23 hatched bird, and although she has been laying over 20 eggs a month since December, she is not going to find her way into any breeding pen. The great majority never lay a second-grade egg, but there are a few that, owing to early maturity, lay somewhere up to half-a-dozen.

Again the Marsh Daisy is not prone to broodiness, and if we are setting under hens we find we have to get our broodies elsewhere.

Nor do we have to sell our cockerels, surplus to establishment, at 6d. or 1s. each. I have been getting over 5s. each for twelve week old birds, wholesale.

I suggest that the small man sometimes wants something to put on his table besides an egg. Personally I claim that the Dual Purpose fowl is eventually going to replace the mere egg machine. The Marsh Daisy, so well described by my friend, Mr. Stott, on page 34 in our 1923 Year Book, is a Game Bird, and the gamey flavour is worth something on the table.

Egg Production.—The Marsh Daisy does not as yet lay 300 eggs a year, and I hope she never will. If she does the breed will be ruined by the public having 15s. birds foisted on them by the advertising specialist at 42s. each, or more, and the long-suffering public will be quickly disgusted.

Some of us have birds that have laid over 240 eggs in their pullet year, and have not lost their vigour or the capacity to transmit same to their offspring.

Again, take the country round here in Sussex, large tracts of which are under water for months. The Marsh Daisy thrives under such conditions.

The birds will look after themselves, and, given free range, will find the bulk of their own food. They are exceptionally hardy, and so easy to rear.

They have not, "Deo gratias," been ruined by the Fancy. I saw a well-known breed of fowls at the Sussex County Show last summer. Enormous birds, one first and champion, and the other v.h.c. While admiring these giants, they each laid an egg the size of a pigeon's. With Marsh Daisies these things simply don't happen.

I am convinced the breed has come to stay, although it is not yet largely advertised for sale.

Finally, if the readers of "Eggs" have had the patience to read my remarks so far, it is claimed that Marsh Daisies, as a pure breed, show sex-linked inheritance, and the markings of the cockerels can be distinguished when hatched.

Dr. Crew is at present investigating this, meanwhile I have had a pen of Light Sussex x Marsh Daisy all this winter, and almost all my eggs have been fertile, have hatched out well over 90 per cent., and the mortality among the chicks, even during February, has proved very low.

At five weeks they are double the size of the pure-bred bird, and they develop wonderfully. I have yet to prove this cross as a good egg producer, but as my Light Sussex had a flock average of 180, and the Marsh Daisies 189, I have great hopes of being able to show good results. The cockerels hatch out white and the pullets brown, with dark patches. I should add that the vigour and vim of the Marsh Daisy Cock makes him a suitable bird for any first cross. This, at any rate, is the experience in Lancashire, a far from benighted part of the world.

Mr. Stott, our Club Secretary, will, I feel sure, give any of your readers all the help and information possible regarding the breed, and where reliable foundation stock can be procured.

His address is Bowling Green Mill, Darwen, Lancs., and the Club Year Book will perhaps be of interest. I will gladly post a copy to anyone if they will communicate with me.

Notes on Utility Ducks.

By A. HAROLD PAINE.

The most important factor in poultry and duck-keeping is the cost of feeding, and whether there is to be a profit or a loss on the year's operations depends mainly on the food bill. In my notes last week on comparative egg production I gave the averages of all the pullets and all the ducks at the last Bentley Test, which showed a lead of 25 eggs per bird in favour of the ducks. That such a result was obtained at a moderate feeding cost is proved by the mash which was given. Miss Barr, who is in charge of all the ducks at Bentley, wrote some very valuable feeding notes which were published by the Utility Duck Club some time ago, in which she said that a concentrated mash is not desirable and that the results obtained were from a mash made up, roughly, of 60 per cent. middlings, 15 per cent. broad bran, 15 per cent. maize meal, 10 per cent. fish meal, the mash being varied according to the weather, egg production, and other circumstances. Miss Barr also said that boiled potatoes are useful to save meal, but should only be used in small quantities, excepting for fattening purposes. She had tried many varieties of clover meal, but at no time of the year did it appear to her to be a useful ingredient of a mash for the egg-laying duck. Now the mash stated above is by no means an expensive one, but as I do not know the exact quantity consumed by each duck I cannot give the cost of feeding for the year. I should take it, however, that in any case it would not exceed 3½d. per bird per week, or say 13s. for the period of 44 weeks. For the period in question the average of the whole of the breeds of ducks was just on 200 eggs (199.22) per bird. These eggs may be valued at 2d. each. totalling £1 13s. 4d. per bird—roughly £1 per duck over the feeding cost.

I quoted last week an average of 330 eggs per bird for a pen of five Khaki-Campbells, the owner of which feeds all his grown ducks as follows:—6 measures bran, 4 measures middlings, 2-3 measures flaked maize, half measure fish meal. They have good grass runs, but the only water available is that given in large bowls or crocks. This of course shows an extraordinarily high profit, but to keep five ducks and then five hundred are quite different matters. What five hundred birds can produce, however, is shown in a letter contributed recently by Mr. C. S. Roscoe to our contemporary, the "Poultry News": "Given generous feeding and generous treatment, a large flock of laying ducks can be made the most paying proposition on a general farm. Three years ago I induced a friend of mine, who runs a 561 acre general farm, to take up Khaki-Campbell ducks. He was most sceptical about it, and only did so on condition that I came in with him over them, and did the hatching and rearing for the first two years, and also supervised the feeding and general management. My scheme was somewhat ambitious, for I aimed at 1,000 head of layers, kept in two flocks. To cut a long story short, we have now got over 500 head, and are going to breed another 250 layers this year. All are Khaki-Campbells, and the results have more than exceeded our expectations, in spite of the adverse weather conditions experienced this winter. This may sound almost incredulous, but my friend admitted that the net profits on the ducks' eggs for January and February was more than he netted on the milk from 20 milking cows. The sale of eggs from the ducks rose to over £24 per week in February, and the cost of feeding worked out at £9 10s. per week, according to weather conditions. We have not depended in any way on the amount of natural food the birds have been able to obtain, for this has been negligible, due to the continuous frosts. Labour does not cost 10s. per week, and, as regards food, by far the highest cost is the fish meal, as we only use the very best, costing £22 per ton, free on rail, at Hull. Cheap fish meal is dear at any price, and ruins one's reputation for first-class eggs. The whole secret of winter duck egg production is generous feeding, which must contain a high percentage of first-class fish meal, 15 to 25 per cent., according to weather conditions. Remember, ducks are not hens. A duck will easily dispose of half a dozen frogs in a day, which would be equivalent to about a 75 per cent. protein ratio, and thrive on the diet. The farm ration for the ducks is: 1 cwt. bran, 80 lbs. rough ground oats (ground on farm), 56 lbs. best grade fish meal. We have not dropped below a 50 per cent. egg production since December, and it is now at over 90 per cent."

For simplification in working out actual feeding costs the following Ready Reckoner (from "Rations for Live Stock," Ministry of Agriculture and Fisheries) will be found useful.

per ton.	per lb.
£7 0 0	¾d.
£9 6 8	1d.
£11 13 4	1¼d.
£14 0 0	1½d.
£16 6 6	1¾d.
£18 13 4	2d.
£21 0 0	2¼d.
£23 6 8	2½d.
£25 13 4	2¾d.
£28 0 0	3d.

CORRESPONDENCE—(Continued).

SICILIAN BUTTERCUP.

To the Editor of "Eggs."

Dear Sir,—An attack of flu' has delayed me from sending you along another line in answer to your questions regarding the Sicilian Buttercup as a winter layer, and also its value as a table bird. We find personally that their pen records compare very favourably with all our other Light breeds as winter layers. I brought in to-day a record board from a very exposed pen, consisting of eight Brown Buttercup pullets and a cock. They were mated up in December, and have been laying steadily ever since: January 107, February 77, March 149.

It must be noted that these birds were treated as breeders, and not fed or sheltered for excessive egg production, and that it has been an exceptionally cold winter. We have, however, received several letters telling us of flock averages up to and over 200 eggs hatched in April. The Buttercup will go steadily on laying from October right up to the Autumn again, laying and moulting at the same time.

The flesh may be dark, but they are small-boned and dainty little birds, with a fine gamey flavour, weighing up to 2½lbs. to 3lbs. at 16 weeks old.

Yours truly,
M. A. SCOTT.

Our correspondent is not very convincing, the records he gives are only partly winter records, and they are not very great. It would help us if when he speaks of "flock" records of 200 and over, he would say what constitutes a flock. Two and a half to 3lbs. is not very large for a table bird at 16 weeks.—(Editor.)

SEX-LINKAGE.

To the Editor of "Eggs."

Dear Mr. Newman,—Referring to Dr. Crewe's letter, published in your issue of yesterday's date, it might interest some of your readers to know that the crossing of Light Sussex hens with a Red Sussex cockerel has been carried out here with complete success. The Pullet chicks are mahogany coloured at day-old, while the cockerels are typical Light Sussex, both sex, of course, having white legs. I mated a very fine male bird of Franklyn Strain of Reds to trap-nested hens of Bostock Smith's Light Sussex. I purpose trap-nesting the pullets and fattening the cockerels this autumn.

Yours faithfully,
WILLIAM JOHNSTON.

VACCINES.

To the Editor of "Eggs."

Dear Sir,—The following experience with Vaccine for Avian Diphtheria may be of interest to your readers.

One of my flocks had disease last November, and by isolation and treatment with Izal and Milton were cured, and have remained clear. Another laying house developed the disease about the middle of December, and were treated in the same way, except that about January 7th to 12th they were given three injections of Vaccine. They were clear by the end of the month, whether due to the vaccine, or the dressing with antiseptics and the disease running its course, one cannot say, probably the latter in view of subsequent events.

Another laying house of 300 pullets were given two injections of Vaccine about the middle of January as a preventative, all the birds were examined, and no trace of disease found. About a week later signs of disease were noticed, and they were given two more injections of Vaccine, making four in all. By the end of another two weeks 250 of the flock had the disease, mostly serious cases.

So much for Vaccine, about £8 was thrown away in Vaccine for this one flock, to say nothing of four people working four hours a night at each injection.

I am not giving my name here, but Mr. Newman will doubtless forward a letter to me from anyone who is interested.

A. B. C.

WELLINGHAM EXPERIMENTS

DUCKS *v.* HENS.

To the Editor of "Eggs."

Dear Mr. Newman,—I have been following with great interest the Wellingham Experiments, since they enable me to compare the returns from ducks with those from hens, I have almost entirely transferred my attentions the last year to ducks (Khaki Campbells). I run 70 birds and at a neighbouring farm in conjunction with a friend. We have a flock of 411 birds, all K.C's, kept under farm conditions; these have from 10 a.m. free water-meadow range

I have done a considerable amount of experimental feeding in connection with ducks for the last three years before starting to build up a large flock. The experience I gained from keeping a few in 1920 made me realise that the ordinary feeding as given to hens was not satisfactory for ducks.

I had two objects in mind, one to feed as cheaply as possible, consistent with good egg returns, and secondly, to lay out as little capital as possible. I followed Mr. Oscar Brown's ideas as regards penning the birds in the open, after my first year's experience of the ducks, and since then I have never gone back to houses.

The first year I kept the birds in the open. I cannot say I was satisfied with the egg returns, but I felt there was something wrong with the feeding. I gradually experimented on different pens of ducks, with various foods and quantities, until I gradually worked up the egg returns, until now I think I can say that I have practically reached the maximum I am ever likely to get in winter, although my October returns were spoilt through interference by forces, so I cannot say for certain what October returns might have been had the birds not been disturbed.

One of the chief difficulties with my ducks that were kept away from water was the number of birds that indulged in periodical moults, for no apparent reason, whereas the birds on the farm that had full access to water did not go in for these out-of-season moults.

This winter we have had some truly remarkable results with our birds, absolutely no sickness, in spite of the fact that they have slept out in the open whatever the weather might be and high up on the Chilterns. Here we have had some 22 degrees of frost some nights, yet the birds look more fit than I have ever seen them before, and the eggs are hatching well, and I already have ducklings that are full fledged and quacking.

The interesting part about my little series of feeding experiments has been the fact that we have gradually reduced the cost of feeding with a resulting higher output of eggs. The feeding formulas that we adopt are so simple that not even the biggest dunce could get worried over. The parsimonious person may be alarmed at the quantity of fish meal, and the fact that the price is so high, but we only give the best for obvious reasons. I know that many will say that the ration is far too forcing, and probably wasteful, but I can say without the slightest hesitation that it is not so for ducks, although it would certainly kill hens in a very short time; but I base my idea of such a high percentage of fish meal on the fact that my best layer, known as "Mother," now four years old and still laying well, has on occasions devoured seven frogs off the reel that my little girl has caught for her, yet beyond looking rather bulky after this feast nothing has happened except that she never ceases to lay and looks as young as she did two years ago.

When potatoes were cheap last winter, 1922, I fed large quantities of boiled and mashed potatoes, but these have now come to an end, so that they have been replaced by maize flakes, and I am going to stick to these as they give bulk and contain the germ and gluten.

The following is the menu for my 70 birds, kept entirely on land. Per diem for 70 ducks (includes 10 drakes):—

Flaked maize	8 lbs.
Fine middlings	12 lbs.
Palmer's fish meal	5 lbs.
Total	25 lbs.

Twice per week during cold weather 2 lbs. of rough butchers' fat is added to the mash, finely chopped up. No corn is fed.

Per month of four weeks, the quantities and prices work out as follows for 70 ducks:—

			£	s.	d.
Flaked maize ...	224 lbs.	Cost.	1	7	6
Fine middlings	336 ,,	,,	1	11	6
Fish meal ...	140 ,,	,,	1	10	0
Rough fat	16 ,,	,,		1	4
	Total		£4	10	4

Amount consumed per 10 ducks for 28 days equals 101½ lbs.

Cost of food for 10 ducks for 28 days equals 12/10½.

Eggs laid by the 60 ducks for 4 weeks Feb. 1,565, which equals 26.5 eggs per bird.

It will be seen therefore that the February 10 ducks produced almost exactly 100 eggs more than the 10 birds in pen "D" of the Wellingham experiments, and at a cost of 1/10 more. As I get 2d. to 3d. more wholesale for ducks' eggs than I do for hen eggs, the difference in the value of the eggs is even greater.

The average for January worked out at 23.54 eggs, the total being 1,413 eggs. The wholesale price was

3/- per dozen for ducks' eggs in London, sold to a dairy during January.

On three days during February the egg returns were over 100 per cent., as several birds laid both morning and evening; so far for this month the high average still continues.

During the month of December the egg average was 57 per cent., and I was then feeding bran (broad) in with the food, but I have gradually done away with this and replaced it with one quarter the amount, by weight, of flaked maize. The most interesting point about the high production is, that when we had a heavy fall of snow, accompanied by a bitter north wind, to which the ducks were fully exposed, I decided to give the birds a late feed, as the days were so short. I did not increase the amount but divided the morning meal into two parts. One-quarter of the total mash was fed at 7 a.m. (in the dark, for ducks see in the dark), one-quarter at 4.30 p.m., and one-half at 10.30 p.m., when I shut up. Strange to say within two days the egg output shot right up, and whilst the snow was still on the ground it went up to over 75 per cent., and has gone steadily up until it reached its maximum towards the end of February, and there it has remained.

No light is required for the ducks to see to eat this late feed. The food is just put into the troughs and they seem to find it without trouble. Obviously the increased returns are due to the more even distribution of the food, the bulk being given at a time when they most need it, for now I find that many of them don't worry about eating their breakfast, and for the last month the ground has been frozen hard in the morning, so that they have not been able to find any insect life when let out.

Naturally, as weather conditions get more mild and the grass commences to grow, the fish meal will be reduced as well as the flaked maize.

On the farm the 411 ducks have given almost as good an account of themselves. The same proportion of fish meal is fed until animal life makes its appearance again, when we shall reduce it to almost a negligible quantity whilst the frogs are spawning, for there are endless ditches and dykes on our land, and in warm spring weather the birds come home with their crops full, and often hardly touch their food.

If you care for further details of the farm-kept ducks I will let you have them. They are producing between 29 and 31 dozen eggs per diem; we are giving them the late feed as well.

I should like to point out that it must not be thought that 25 per cent. fish meal is always needed, at times 5 per cent. may be ample; weather conditions must determine the quantity likely to be required.

RECORD OF THE FLOCK OF 60 K.C.'s MENTIONED FROM FEBRUARY 1st TO MARCH 27th.

February 1st, 53; 2nd, 57; 3rd, 52; 4th, 54; 5th, 53; 6th, 58; 7th, 57; 8th, 51; 9th, 54; 10th, 52; 11th, 59; 12th, 57; 13th, 54; 14th, 52; 15th, 58; 16th, 61; 17th, 57; 18th, 58; 19th, 53; 20th, 56; 21st, 62; 22nd, 59; 23rd, 53; 24th, 51; 25th, 57; 26th, 51; 27th, 63; 28th, 60; 29th, 57.

March 1st, 59; 2nd, 58; 3rd, 60; 4th, 57; 5th, 54; 6th, 53; 7th, 61; 8th, 56; 9th, 58; 10th, 53; 11th, 56; 12th, 61; 13th, 57; 14th, 64; 15th, 68; 16th, 54; 17th, 60; 18th, 61; 19th, 57; 20th, 61; 21st, 56; 22nd, 67;* 23rd, 62; 24th, 51; 25th, 54; 26th, 53.

I do not say that these are usual records; they are considerably higher than I have had in previous years at this period. As ten of the above birds are trap-nested I know that three were not laying as they are in moult, so that on some days a number of the birds laid two eggs in the 24 hours. To my knowledge I have only had three soft-shelled eggs since February, and only two double-yolked ones. During the flush the birds were consuming 15 lbs. of oyster shell per week, also a considerable amount of chalk.

One of my trap-nested birds, No. 94, of the team I sent to the 1922-23 Bentley Test, has laid 111 eggs without a break. She only had a record of 235 in her first year whilst at Bentley.

C. S. ROSCOE.

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* Weather became distinctly milder, and the ducks showed signs of restlessness and a tendency to retain their eggs until let out. Many laid their eggs from between the hours of 9 a.m. to 12 p.m. This is most always a sign of dropping off. Several very small eggs laid and the general size of eggs getting smaller. Generally from three to four days sees the commencement of a new batch. The drakes have been very active the last few days. This also I find is inclined to put the birds off somewhat.

THE USE OF VACCINES, ETC.

To the Editor of "Eggs."

Dear Sir,—Like your correspondent, who raised the subject, I also am a vendor of poultry medicines, which includes vaccines for the prevention and cure of diphtheritic roup.

I therefore beg to be permitted to reply to your Editorial, which appears in "Eggs" of the 12th instant, on the advisability or otherwise of attempting to cure chicks and adult stock of the numerous diseases to which our present-day high-fecund stock seems so prone.

I concur that it is to be hoped that the time is not far off when, with the assistance of the N.P.I., further discussion will be unnecessary.

(1) As regards the "unfortunate individuals" to whom you refer, I do not think they are quite so hopeless as you would lead us to believe, because I take it that a man who sets out to rear 500 birds to maturity, and who anticipates a mortality of 50 per cent., realises one thing only, *i.e.*, he must hatch off 1,000 chicks. If his anticipations are not realised he only stands to be "landed" with what stock he has hatched.

(2) You next mention those who look to Laboratory and Research, and those who use drugs as medicines, and point out their weakness in looking in this direction for the solution.

Now Sir, I address you as one who believes that the Laboratory and Scientist will get to the bottom of all our difficulties in due course. Until the N.P.I. has made its exhaustive enquiries, I do not think you are wise in isolating the scientist and laboratory and proclaiming that those who follow these are weak. I would be the last one to deny that the breeder is not essential, rather would I put it to you that breeder and scientist working *together* for a common good (*i.e.*, the improvement of stock from a health point of view) are most likely to achieve results satisfactory and conclusive, than they are by independent enquiry and experiment. I take it that in its sphere you are prepared to accept the findings of the eminent men of the N.P.I., even if they do prove your beliefs to be in error.

So firmly do I believe in the value of the scientist that I feel secure in saying that he will find out whether the question is one for the breeder sooner than the latter will find out, if it is a matter for the former.

(3) Concerning breeders, your statement regarding the careful selection of breeders is (if I may use the expression to illustrate my meaning) the truest you have uttered through the columns of "Eggs" for many a day. But what can be done to bring breeders to realise that, not only is it business to breed from real healthy stock, but it is also a DUTY to the buying public? "Eggs" does all that it humanly can to protect its reader buyers and genuine breeders, but the nature of the business is such that it lends itself to fraud and is most easy to exploit. It is impossible to deal with advertising to such an extent as you would lead one to believe.

The writer of this letter wishes it to be clearly understood that he does not seek on either his own or his principal's behalf, advertisement through your columns.

I am agreeing to your publishing my name or non de plume, which ever you think fit. Should you state the former then such advertisement which is accorded (if any) is at your instigation entirely.

It is also highly desirable to breed from "immune stock." You will agree with me that there must be thousands of prospective "immune" birds throughout the country, and it is here that the question becomes one for breeders.

But what is to happen in the meantime? Surely you will agree that until the breeders have performed their task the palliatives are at least *useful* if they *save life*. I believe it is the duty of all who have discovered the means of prevention and cure to offer same to the community, and even to do so at a profit.

You say disease lurks in the brooder house, etc. I would go one farther, and say disease in some shape or form is ever present where poultry are concerned. Take a chick, for example, that is down with coccidiosis. You know infection is through the droppings and its fouling of foods, and "wee" chicks are all of them liable to pack at the fæces, and thus infection goes on. This is nothing to do with the breeder who supplied the eggs or chicks.

Now what is the objection to adding to chicks' drinking water something which, according to those qualified to say, will prevent infection, and not harm the bird? None whatever! One does not require statistics or testimonials to prove that what I am going to say is right; all one need do is refer to the answers which your disease expert gives to his enquirers who have lost chicks from coccidiosis. Mr. Leeney says, "Give them catechu." So do we!—but you say this is "skirmishing," and the breeders think it hard luck that something is being offered to prevent and cure coccidiosis. What is the small perplexed poultry-keeper to do? Is it humane of him to let his little mites die off without making an effort to save them, and *can he afford to buy fresh dozens every time* anything goes wrong? Probably to a man with a mammoth incubator it does not matter much.

Feeling that I have occupied as much of your valuable space as I can reasonably expect, I will, with your permission, deal with the additional points of your article next week.

PREVENTION.

Our correspondent has surely not interpreted the meaning of what was written correctly, or he would not have asked such a childish question as, "What is the objection to adding to chicks' drinking water, something which, according to those qualified to say, will prevent infection and not harm the bird?"

No such suggestion was ever made in the article, we were dealing with the broader question of fundamental causes. It was not suggested that palliatives should not be used, and as he mentions Capt. Leeney's name, we may say that we received a very kind letter from that gentleman, congratulating us on the article, and asking that copies should be printed for circulation. It hardly seems necessary to refer to the sentimental effort in which he refers in such pathetic terms to the "little mites," we are content to leave that to the common sense of our readers. He speaks of "those qualified to know." The question is, who is qualified to judge whether they know or not? Some years ago a well-known American scientist recommended bi-chloride of mercury as a preventive and cure of B.W.D. His position as a research worker was such that this was recommended in these columns, but the result proved most unsatisfactory. As a preventive it was most unreliable, as a cure it was a failure. It was proved, without much doubt, that it was injurious—that chicks given it failed to develop properly or were stunted in growth. There were some who wrote testifying to its efficacy, others said it was ineffective, and others said definitely that it was injurious. Here was a case of experience in the laboratory as against experience in the field. No case has yet been reported to us of a vaccine being harmful, but many have written to say they have done no good, while others have spoken well of their use.

We did not proclaim that "those who followed the scientist and the laboratory were weak." Nothing of the kind. Our correspondent should be more careful in his statements. This is what was written: "There are others who look for a solution in the laboratory, and still others who pin their faith on serums, vaccines, and drugs. This, in our opinion, is the weak spot in the fight with disease." The meaning conveyed will be plain, the article dealt with the whole question of chick mortality; and to put our faith in the laboratory, and in vaccines, serums and drugs as the sole means of fighting would indeed be the weak spot in the fight with disease. Again, we never mentioned anything of "unfortunate individuals who anticipated a 50 per cent. mortality." Although they would be unfortunate indeed, what we said was, "There are some unfortunate individuals who believe that a high chick mortality is inevitable." That is a very different thing; they are unfortunate, because most of us who believe a thing INEVITABLE, tamely acquiesce, and do not fight.

There is no point in the question as to whether we are prepared to accept the findings of the eminent men of the N.P.I. "even if our opinions are erroneous." One would think the article in question was a condemnation of the scientist and research worker. Our correspondent cannot be more appreciative of their work than we are, but apparently he is so immersed in his vaccines and serums as to fail to be aware that one needs quite as much scientific knowledge in solving the problem of perfect ventilation, and in the search for a perfect brooder, as in the search for a vaccine or serum, or the identification of bacilli. What called forth the remark that "It is impossible to deal with advertising to such an extent as you would have us believe"? We have never led anyone to believe anything on this point, and it is quite impossible for him to know to what extent we deal with advertising. It might open his eyes if he knew what a large number of advertisements are rejected.

As he does not seek on his or his principal's behalf free advertisement in these columns, although no suggestion has been made that he did, it will be advisable to accept his offer to publish his letter under a nom de plume, at the same time complying with his request that his remarks anent this should be printed in italics. He may remember that in May last, a letter of his appeared in these columns, in which he stated that, "THE PRECAUTIONS HE TOOK SIMPLY RENDERED DISEASES OF ANY DESCRIPTION IMPOSSIBLE."

We begged him at the time to earn the undying gratitude of those engaged in the industry by describing for their benefit these same precautions. The invitation was not responded to. We now ask him, if he based this statement on something "according to those qualified to say," or on his own experience, and if the latter, over what number of years, and with what number of birds, particularly with the number of chicks reared each year —(Editor.)

CHICKEN-POX.

To the Editor of "Eggs."

Dear Sir,—Diagonising a subject of chicken-pox in "Eggs," January 23, Capt. Leeney says:—

"The White Leghorn is the subject of chicken-pox. . . . . which is very infectious, and when advanced most difficult to cure; but if recognised early, and the wart-like bodies scraped clean off, and the raw surface cauterised with a nitrate of silver pencil or sulphate of copper, they will not grow again."

I am not out to criticise Capt. Leeney's findings, but, rather, I am earnestly seeking to obtain further knowledge of this disease, and if he would kindly supply same through the medium of "Eggs" I will esteem it a great favour.

It seems to me that cauterising is not of any material benefit. I have done it, and, as Capt. Leeney has explained the "wart-like" bodies do not grow again only in exceptional cases, and these may not have been thoroughly cleaned, a little of the virus may have been overlooked. But is not this merely tinkering with an effect? It seems to me that the nodules are only the outward signs of the disease, and unless they appear round the eyes, are not really a menace but rather a relief to the subject. The real danger would appear to the writer to be internal, because I have frequently noticed that the affected fowl experiences almost instant relief when they make their appearance.

I would like to give—in detail—my experiences and observations of chicken-pox from the layman's point of view, and also draw some conclusions.

First it would appear that this insidious disease is more pronounced under certain peculiar climatic conditions. It finds its very highest level in the tropical and semi-tropical countries, whilst in the more temperate zones its effect is comparative negligible.

To illustrate. Mr. Brown, the chief poultry instructor of New Zealand, informed me that the disease was unknown on the South Island, but was periodically in evidence on the North.

In Honolulu—the "Garden of the Pacific"—the disease takes a terrible toll. I am informed by one who has had poultry there that they may usually write off 50 per cent. of the pullets raised to maturity. In Cuba it is even worse, its ravages are so widespread.

In the north of this country, i.e., around Warbington and Oregan, they get the disease in only a mild form, and regard it as of no consequence. Coming south, we find around Sonoma County (which embraces Petaluma) it is rather more prevalent, and as we journey further south, and the climate becomes gradually warmer, we find it correspondingly increases in its intensity. San Diego is extreme south of the U.S., and may be termed semi-tropical.

On the above evidence I am led to conclude that chicken-pox is correlated with peculiar climatic conditions.

My next observation is that the disease is seasonable. It will first make its appearance about the latter part of September, and will usually clear up by the end of the year, or at latest by the end of January. It will attack Autumn-hatched chicks when they are a few weeks old, but will not affect early Spring chicks until the following Autumn, or early Winter, and this brings me to Capt. Leeney's diagnosis.

If the chicken-pox growths retain their infectivity for years, why do they show no signs of activity during the Spring and Summer months?

I may say that the general opinion held by the layman here, an opinion which is often based on many years' experience with chicken-pox, is that, when the nodules drop off they have lost their sting, and represent so much dead matter, and at present I am inclined towards this view.

Most of the poultrymen utilise the manure from the poultry houses to fertilise the land for the purpose of growing green feed, and claim to have had no detrimental effects thereby.

As an alternative theory I would like to have Capt. Leeney's opinions as to whether or not it is possible for the disease germs to be dormant during the Spring and Summer months, and resume their activity during the fall and Winter?

Again the ravages of chicken-pox can be minimised to a large extent by feeding and housing conditions. For instance, I believe there is ample proof that the disease can be aggravated by feeding an excess of animal protein, and retarded by feeding as much green feed as the fowls can eat. (It must be understood that these rules apply only when observed before the disease makes its appearance). As to housing, if they can be so constructed as to prevent Autumn colds, one may expect to have only a mild attack.

Strange to say, if the pullets are affected in the earlier part of the season—say in August—they appear to be able to ward off the disease quickly as a rule; but the very worst cases are those which first show signs of infection after December 1st.

As I mentioned in my recent article in "Eggs," chicken-pox, without any complication, will have little detrimental effect on the birds, and if the outbreak can be confined to this disease, the egg yield is not greatly diminished.

This brings the question: Is roup an expression of chicken-pox in its most virulent form, or it is a distinct disease?

I will esteem it a favour if Capt. Leeney will answer the foregoing questions, and comment upon the conclusions I have drawn.

Yours sincerely,
FRED FIELDING.

CO-OPERATIVE FATTENING AND MARKETING OF POULTRY.

To the Editor of "Eggs."

Dear Sir,—Mr. Gleed, who has written to several poultry papers, criticising the proposed co-operative scheme for the disposal of surplus poultry, is labouring under a delusion.

It has never been suggested, nor is it proposed, to "eliminate entirely the middle man." Those who have devoted endless labour, time, and thought in working out a satisfactory scheme—I refer to the committee appointed at the London meeting—are not so fatuous as your correspondent seems to imagine.

They are not out for eliminating anything save the shockingly bad prices received by the poultry breeder for years past.

If he will take the trouble to again read the copy of the scheme, he will not find a single reference to the elimination to which he refers. Rather will he find that the object in view is to market a finished product, that is, the dead bird in one form or another, instead of the hitherto unfinished one, i.e., the live bird.

Co-operation is going to give the poultry breeder a way out of his difficulties never before possible. He realises that, for he has, so far, collectively offered over a quarter of a million birds for conversion to the finished condition upon which the committee lay such stress—and rightly so!

He need not worry about the book-keeping question. I assure him that that side of the scheme will be in quite capable hands, and that it will be neither "excessive" or "complicated."

Further, whether or not he considers the phrase "the more capital promised assures the greater success" to be merely clap-trap, the fact remains that the extent to which these surplus birds can be dealt with, will depend, and depend alone, on the financial support forthcoming from those who will reap the most benefit.

Dealing with his last paragraph, he forgets one important factor, i.e., that the art of preparing, grading, and marketing the dead bird is an entirely separate trade from that of breeding and rearing, and, as such, requires years of specialised experience.

Yours faithfully,
S. G. HANSON.

The Old Down, Basingstoke, Hants.
1st April, 1924

POST-MORTEMS.—(Continued).

G. B. The White Leghorn pullet produced yolks faster than she could pass them into the tube—a a frequent trouble in good layers, and there was one broken, and the contents spilled into the peritoneal cavity, causing peritonitis; and two hanging on long umbilical cords (if one may so call the thin long necks) and strangled by being twisted. This bad time-keeping between the various organs concerned seems inevitable while we are striving for the egg-a-day-all-the-year-round standard. It is as well that they should fall out of the race, and leave propagation to others better able to accommodate themselves to the conditions demanded, and reproduce such as are likely to survive our artificial conditions.

Aberdeen. Your diagnosis of "brooder pneumonia" is confirmed by post-mortem examination. Yes, either the citrate of iron and quinine or the ammonio-citrate of iron. The combination of quinine is preferable in most cases.

Atrough or Alborough. The chick had pneumonia, and was chilled.

T. H. G. Both chicks had pneumonia, of the accidental or east wind variety.

"F. L.," or something else crowded at bottom of letter. The R.I.R. had a degenerate liver (amuloid), and it is likely that your other recent losses are attributable to the same disease. It is a dietetic one, and in my opinion more due to fish meal than other foods, and has greatly increased since the abuse of that excellent substance has been general. Interested vendors recommend much too large a proportion of a food that cannot be wholly deprived of oil, and many common brands contain a very high percentage.

Mrs. E. C. This was a case of east wind pneumonia.

Mrs. E. M. Pneumonia was the cause. The chicks are wanting in stamina, and easily succumbed to the persistent east winds.

W. J. F. The chicks had brooder pneumonia, not B.W.D. I did not open the whole 21 birds sent. One cannot do all that for a single reader, and for the change out of half-a-crown when expenses have been paid.

H. M. M. Yes, pneumonia. No suspicion of B.W.D.

E. D. The bird had pneumonia in very acute form, not the specific contagious kind.

H. LEENEY.

The Keighley and District Branch of S.P.B.A. held a well-attended monthly meeting on April 2nd, at the Temperance Hall, Keighley. The President, Mr. Frank Snowden, in his opening remarks, said he hoped to see the membership doubled, or even trebled, this year. A Prize Draw was arranged, for which forty-one prizes were offered by members and friends, Mr Snowden heading the list with the offer of a White Leghorn Cockerel from his £1,000 "Daily Mail" winners. The Vice-President, Mr. S. Lawton, followed with a White Leghorn Cockerel from his Gold Medal hen. It is hoped to have books of tickets ready by April 9th, 1924, and they may be had on application to the Secretary, Mrs. Wilson, Minorca Farm, Denholme, Bradford.

Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Dickson, Adam, Derryboy, Crossgar, Co. Down
Cropper, T. A., Woodlands, Thornton, Blundellsands, Liverpool.
Thompson, Mr., Pinewood Poultry Farm, St. Leonards, Nr. Ringwood.
McLeod, John, 4a, Herbert Road, Dublin.
Lord, Miss A., Compton Poultry Farm, Compton Avenue, Hutton, Brentwood, Essex.
Gee, John Wheeler, Summertown Farm, Oxford.
Wortenholme, G., Church Poultry Farm, Alby, Norfolk.
Mack, Mrs. J. H., "The Normans," Rockland St. Mary, Norwich.
Dalton, L. H., Houghton, Bridgnorth, Shropshire.
Walton, F., White Moss Gap, Staining, Poulton le Fylde, Lancs.
Grier, C. Monro, Bayfordbury Park Farm, Hertford, Herts.
Chapple, Tom, Renwick Poultry Farm, 27, Ninth Avenue, Garden City, Blyth, N'land.
Ward, Harry, 82, Valley Road, Stoke Heath, Coventry.
Jackson, Robt., The Nook Poultry Farm, Cawston Lane, Dunchurch, Rugby.
Ganthern, H., M.C., The Gables, Waterloo, Poole, Dorset.
Coutts, Miss E. T., N/S College of Agriculture, Kirkwall, Orkney.
Edgcumbe, Commander E. H., Reperry Manor, Lanivet, Cornwall.
Snell, L. Stuart, La Huerta, Hinton Road, Wallington, Surrey.
Spencer, W. H., Fircroft, Hereford Road, Leominster, Herefords.
Turtle, Henry P., The Kraal, Hatfield Peveril, Essex.
Beer, Thos. Jas., 16, Victoria Road, Bude, Cornwall.
Daniel, A., Torfoot, Ardnadam, Agyll.

CORRECTION.

In reference to Mr. J. E. Warne's letter on "Incubation," which appeared in our last week's issue, we regret that a mistake occurred. Speaking of the use of hot-water, Mr. Warne says:—"It will send the damper of the machine up, but the temperature only rises about 10 degrees." This should have been "only rises about one degree."

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 4th APRIL, 1924.

GRAIN AND FEEDING STUFFS.—There is very little trade passing in home-grown wheat, but prices show no alteration on the week, except at Liverpool where a slight reduction is recorded in sympathy with the lower prices ruling for imported wheat. Neither home-grown nor imported grinding barley is in active request, and prices again have an easier tendency. Oats are cheaper, both English and imported descriptions being in dull demand. English black oats, however, are not over plentiful and are less affected than are other descriptions. Maize is in quiet request and is cheaper, Argentine averaging 10s. 2d. per cwt. as compared with 10s. 10d. a month ago.

Millings offals are rather pressed for sale and quotations are lower, bran averaging £8 and middlings £8 6s. per ton, a fall of 4s. on the week in each case. Barley meal and maize meal are also cheaper in sympathy with the lower prices ruling for the raw material. Linseed cakes are in quiet request and prices have again fallen by an average of 5s. per ton, the present average, £12 10s. per ton, being about 30s. below that of five weeks ago. Cotton cakes, however, are in good demand and maintain their value.

MILLERS' OFFALS.—Bran (British): Bristol, £8 15s.; Hull, £7 12s.; Liverpool, £8 5s.; London, £7 7s. Broad Bran: Bristol, £9 10s.; Hull, £9 2s.; London, £8 5s. Fine Middlings (Imported): Hull, £8 5s.; London, £9 7s. Coarse Middlings (British): Bristol, £9 2s.; Liverpool, £8; London, £7 17s. Pollards (Imported): Bristol, £7 17s.; Hull, £7; Liverpool, £7 2s.; London, £7 5s. Rice Bran: Bristol, £8; Liverpool, £7 10s. MEAL.—Barley Meal: Bristol, £10 15s.; Hull, £10 6s.; London, £10 10s. Maize Meal: Bristol, £11 15s.; Hull, £11 3s.; Liverpool, £10 17s.; London, £11 15s. Maize Germ Meal: Bristol, £11; Hull, £10 10s.; London, £9 12s. Maize Gluten Feed: Bristol, £11; London, £9 7s.

EGGS AND DEAD POULTRY.

A quiet trade prevails for the heavy supplies of eggs on the market and prices are again lower, 1st quality English averaging 12s. 9d. per 120, a decline of 9d. on the week. The short supplies of home produced poultry meet a good enquiry, especially in London, where chickens have advanced by 3d. and ducklings by 4d. per lb.; chickens now average nearly 1s. 11d. per lb. at the three markets as against 1s. 9d. last week.

Week-end Prices—Eggs (per 120): British, 13s., 12s. 6d.; Irish, 12s. 6d., 11s. 6d.; Danish, 15s. 6d., 13s. 9d.; Dutch, 15s., 13s.; Belgian, 13s. 6d., 12s. 9d.; Egyptian, 8s. 9d., 8s. 3d.; Moroccan, 9s. 6d., 8s. 9d.; Italian, 13s. 3d., 12s.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 4d., 2s. 2d.; Irish, 2s., 1s. 9d.; Others, 2s., 1s. 9d. Ducks, 2s. 6d., 2s. 2d. Geese, 1s. 2d., 10d. Turkeys, 1s. 7d., 1s. 4d.

EGGS.

Per Doz.—Ashford: First, 1s. 2d.; Second, 1s. 1d. Birmingham: First, 1s. 2½d.; Second, 1s. 1¼d. Carlisle: First, 1s. 4d. Chelmsford: First, 1s. 4¼d.; Second, 1s. 1¾d. Denbigh: First, 1s. 0d.; Second, 11d. Derby: First, 1s. 2d. Dorchester: First, 1s. 1d. Exeter: First, 1s. 3d. Hereford: First, 1s. 0d. Hull: First, 1s. 1d. Ipswich: First, 1s. 3d.; Second, 1s. 0d. King's Lynn: First, 1s. 2d.; Second, 11d. Lincoln: First, 1s. 2d. Llandilo: First, 1s. 0d. Newport (Mon.): First, 1s. 1d.; Second, 1s. 0d. Norwich: First, 1s. 1d. Oswestry: First, 1s. 1d.; Second, 1s. 0d. Penzance: First, 1s. 0d.; Second, 11d. Salisbury: First, 1s. 1½d.; Second, 1s. 1d. Shrewsbury: First, 1s 1d.; Second, 1s 0d. Skipton: First, 1s. 3d. Truro: First, 9d. York: First, 1s 2d; Second, 1s. 1d.

FOWLS.

Per lb.—Birmingham: First, 1s. 6d.; Second, 9½d. Derby: First, *5s. 6d.; Second, *3s. 6d. Exeter: First, 1s. 7d. Hereford: First, 1s. 6d.; Second, 1s. 4d. Ipswich: First, 1s. 8d.; Second, 1s. 6d. Lincoln: First, *5s. 3d.; Second, *3s. 6d. Llandilo: First, 2s. 3d.; Second, 2s. 0d. Newport (Mon.): First, 1s. 7d.; Second, 1s. 4d. Norwich: First, *7s. 6d.; Second, *6s. 0d. Shrewsbury: First, 1s. 6d.; Second, 1s. 3d. Truro: First, 1s. 4d. York: First, *6s. 9d.; Second, *5s. 6d.

DUCKS.

Per lb.—Exeter: First, 1s. 6d.

* Per Head.

EASTER HOLIDAYS, 1924

OWING to the EASTER Holidays, advertisements intended for our issue of 23rd April, must be received not later than FIRST POST Thursday morning, April 17th.

F G.

Wednesday, April 16th, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN

(Founded in 1912 by RANDOLPH MEECH).

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Edited by TOM NEWMAN
PRICE TWOPENCE.

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Six Months ,, ,, 6/4
Three Months ,, ,, 3/3

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First in National Laying Test with Khaki Campbell Ducks—*Section 1.*

My Five Khaki Campbells have laid 575 eggs in 24 weeks—*All 1st grade eggs*—I consider 1st grade eggs of great importance.

I CAN SUPPLY EGGS FOR SITTING—DAY-OLD DUCKLINGS AND CHICKS.

Extra-Special Pen	**Eggs 42s.** doz.
Special Pen 1 ... ... ,,	**30s.** doz.
Pen 2 ... ... ,,	**15s.** doz.
£5 per 100.	
Pen 3 ... ... ,,	**8s.** doz
58s. per 100.	
Day-Old Ducklings (Khaki-Campbells) ...	**35s.** doz.
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Light Sussex Chicks	**22s.** doz.
White Leghorns	**20s.** doz.
Reduced rate per 100.	

Miss HARRISON BELL,
Welwyn - - Herts.

My Book " What's Wanted," 2s. 6d., explains Incubating and Rearing. Duck and Hen Catalogues Free.

POULTRY HOUSES of BETTER CLASS

"PREFER" HOUSES are just a little different to other houses on the market. They are built to a standard, not down to a price, and yet they are not expensive.

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Write to-day for Illustrated Catalogue Post Free.

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ST. NEOTS, HUNTS.

Be sure you get a Guarantee of Purity, don't buy so-called Sussex Ground Oats from which the hulls have been screened after grinding—by this method valuable oils are lost—which your poultry need.

BUY SUSSEX GROUND OATS WITH NOTHING TAKEN OUT

"Welco" Sussex Ground Oats are ground from the finest Oats the world produces, grown where the sun shines. They are screened and cleaned before grinding, and are Guaranteed to be both absolutely pure, and also the full value of the grain, no screening being necessary owing to the fine grinding by the very latest machinery for the purpose. Sample on application.

Price 17/- per cwt., carriage paid on 4-cwt. lots. Less than 4 cwt. 9d. per cwt. extra. Cash with Order. Special terms for ton lots.

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PURE BRED WHITE LEGHORNS ONLY.

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The Worcestershire Poultry Farm (E),
TARDEBIGGE, BROMSGROVE.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, April 16th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

ECONOMIC PRODUCTION.

The prevailing price of the new-laid egg is not a safe basis on which to estimate the prosperity of our industry. Naturally we all become a little pessimistic when there are in some districts indications that we shall have to sell them at the popular price of one penny apiece. Still it is average prices for the year that we have to consider, and their relation to costs of production, and we need not turn our face to the wall because we are threatened with the penny egg. In some respects it may prove beneficial even to the producer, for it will at all events stimulate demand.

However, it must be admitted that low prices make one think of cutting down expenses, and we are not all in agreement as to which is the best direction to begin. Judging from correspondence, we may safely say that 75 per cent. of those starting economising, look first at the food bill. This is perhaps not surprising, in view of the fact that this is the biggest item on the expense side, but unless there is a sound reason for believing it to be excessive, it is certainly the wrong way to start economising.

Labour costs and other expenses will surely be reviewed, but we wonder whether the question of replacements is ever given the full consideration which it deserves.

We have no reliable estimate of the cost of replacements. Figures vary from 8s. to 10s., and in some cases 11s. has been mentioned, that is the cost of producing a pullet to the laying age. If we base our argument on the lower figure, it will perhaps be the safer.

On the average commercial egg farm the rule is to replace two-thirds of the stock each year. The question is—and it is a most important one—is this really economical? It would be difficult to say definitely, and for this reason discussion should be valuable, especially if we can get statistics to help us. We are not out to prove anything, and it may be that the necessary information will not be obtainable. If that is so, it will be in the interests of everyone that it should be obtained, and as the commercial side is to be investigated under the Poultry Institute Scheme, surely such an important point as this should not be neglected, for should there be a further decrease in the price of eggs, this may have an important bearing on the future of the industry. There may be many of us who feel confident that the proportion of replacement mentioned above is the only certain means of making commercial egg farming a profitable proposition. If we felt assured on this point we should not bother our readers in this fashion.

The reasons urged in favour of the system we can appreciate. There is the undoubted fact that the pullets will lay more eggs during the winter months, and will lay a larger number of eggs in the year. What is the extra value of these eggs as compared with the cost of producing the pullet which lays them? It is probable that no reliable estimate will be forthcoming. Everyone realises the necessity of replacing part of the stock each year, but to what extent? Does it pay to replace two-thirds, presuming that it has proved reasonably productive, and has been fairly well culled during the year?

It is stated—but whether there is sufficient evidence to rely upon we cannot say—that the average production of a second season is 25 per cent. less than that of her pullet year. There are, of course, extraordinary variations with individuals. Many birds will put up better records as hens than as pullets, and there have been instances of birds which have beaten their first and second year records in their third and fourth years, but we can't deal with individuals. We know that the pullet will lay more eggs during the autumn and early winter months.

If we take the average production of the pullets on the commercial egg farms in this country at 13 dozen eggs, which would possibly be a little above the mark, and that of the hen at 10 dozen, we can perhaps place the earning capacity of the pullet at from 6s. 6d. to

7s. 6d. more than that of the hen. If we place the earning capacity of the latter as low as 16s., what sort of profit will she show us after all expenses have been paid? What we want to get at is whether it is really sound to scrap such a large percentage of the pullets at the end of their first laying year. We have to deal with it as a question of the cost of production, rather than as one of the number of eggs produced. It may be said that on the number of eggs produced depends the cost of production. That to a great extent is true, but what of the cost of the pullet which produces them?

The question really resolves itself into whether two-thirds of the pullets which are produced on a commercial egg farm would show such a small return in their second year as to warrant their being sacrificed at 1s. 9d. apiece. We venture to think that this is a point that deserves the fullest consideration, and that if culling were drastically carried out at the end of December each year, there would be a possibility of a very much larger number being retained which would show a fair profit to the owner. It was probably quite correct a few years ago to say that a pullet was not profitable after her first season for the production of the commercial egg, but with increased production it is questionable whether this is still true. The profitable life of the commercial hen has been narrowed down to two seasons. We have no very reliable evidence to show that in some cases it may not be extended to three. The percentage of a flock which would be profitable in their third season is probably small, but there certainly is a percentage which would be profitable, as it must not be forgotten that a hen which may not come into lay until the end of January, more often than not will lay late into the following autumn.

Surely some serious attempt should be made to estimate the cost of replacements. We have to consider first the cost of the egg, the cost of incubation, the percentage hatched (which on the average commercial farm would probably not exceed 60 per cent. of eggs incubated), the mortality, and the proportion of cockerels to pullets. It is a big question, and, as mentioned before, we have no reliable figures to go on, but those figures ought to be obtainable, and in the best interests of the industry should be obtained.

TO READERS.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

VITAMINS IN CHICK RATIONS.

WHAT IS LEG WEAKNESS?

By CHARLES W. KNOX and ALVIN R. LAMB,
Iowa State College.

(Continued from Page 293).

During the summer of 1923 the same ration and method of feeding was used in another experiment, but there were nine lots fed, some getting new additions to the basal rations.

The additions to the basal rations were made as follows:—

Lot.
1 and 9. Control.
2. 2 per cent. cod liver oil.
3. 3 per cent. canned tomato juice.
4. 3 per cent. tomato juice, 0.3 p.c. Na. CO.
5. 5 per cent. compressed yeast.
6. 20 per cent. fresh buttermilk.
7. 10 per cent. Kentucky blue grass.
8. 2 per cent. butter fat (filtered).

These chicks were started on experiment immediately after hatching, and carried on for eight weeks, each lot being weighed once a week. The grain and mash were weighed at each feeding.

TABLE 2.—EXPERIMENT 2, 1923.

Lot Number.	Total net weight feed eaten.	Weight of chicks. Beginning.	End.	Gram feed per gram gain.
1. Control	671.	34.5	188.5	4.36
2. Cod liver oil	638.	35.0	178.0	4.46
3. Tomato juice	618.	34.0	181.5	4.19
4. Do. plus Na. Co.	654.	35.5	175.5	4.67
5. Yeast	806.	34.0	225.0	4.22
6. Buttermilk	713.	33.0	203.0	4.13
7. Blue grass	652.	35.0	171.6	4.77
8. Butter-fat	542.	34.0	142.0	5.02
9. Control	637.	35.5	189.5	4.14
Average of 1 and 9 (two controls)	654.	35.0	189.0	4.25

The additions carrying a high percentage of the fat-soluble vitamins did not produce better growth than the control lots. In all our work the fats (cod liver oil and butter-fat) added did not appear to improve the ration. On the contrary, the chicks receiving fats appeared unthrifty, and did not make as good records as the controls. The lots receiving yeast and buttermilk, both carriers of vitamin B, show better growth than the controls.

Sodium carbonate was added in some cases, as indicated above, to the buttermilk or tomato juice rations, because of an apparent poor condition of the chicks observed in an earlier experiment, which might have been due to the acid in the tomato juice. The chicks appeared to be in better condition, and apparently a slight droopiness was corrected when the sodium carbonate was added, but the gains were not better, and in one case not so good as in the corresponding lots not receiving the alkali. One of us has demonstrated the high tolerance of rats, swine and rabbits to acid, in this case non-oxidizable mineral acid, but it was considered possible that baby chicks might be sensitive to acid rations.

In the first experiment reported here (1922) the economy of gain was greatest in the case of the lot receiving yeast. The next in economy of gain was the lot receiving buttermilk. Both of these lots performed much better than the control lot. Our data do not demonstrate any need of chicks for the anti-scorbutic vitamin, although the tomato juice improved the ration which had been heated to destroy vitamin C.

In 1923 experiment, which last eight weeks, the lots receiving yeast, buttermilk, or tomato juice were all better in rate of gain than the average of the two control lots, but the differences were not so great as in the other experiment. The effect of yeast may be due to its content of vitamin B, but other substances, such as excellent protein, are found in yeast, which might influence the results.

The first experiment in 1922, not previously mentioned here, was carried on in brooders indoors. In this experiment during the first three weeks (before disease appeared) the yeast-fed lot was amongst the best, and the cod liver oil lot the worst. This lends some slight corroboration to the data mentioned above. Our only explanation for the poor showing of the lots receiving fatty additions is that difficulty in digesting the fat may have affected the growth of the chicks.

To determine whether or not this was of practical value another experiment was carried on, three lots being used.

Lot 1. Basal ration, buttermilk, *ad libitum*, and free range.

Lot 2. The same as Lot 1 plus 5 per cent. of sodium carbonate.

Lot. 3. Same as Lot 1 plus 5 per cent. of yeast.

These lots were all practically equal in growth during the time the experiment was carried on. One may assume that the vitamin carried by the yeast was supplied by the green material eaten by Lot 1.

There was no case of leg-weakness developed in any of the lots, and the mortality was practically equal in all lots. It therefore appears that none of the additions as used in any of the above experiments is of appreciable value where free range is allowed and green grass is available. If green leaves were not available, additions of buttermilk, if not yeast, would be advisable on such a basal ration as was used here. *(By the courtesy of the Editors of 'Poultry Science.')*

NATIONAL POULTRY INSTITUTE.

EXPERIMENTS IN TABLE POULTRY BREEDING.

The Ministry of Agriculture and Fisheries has received the concurrence of the Treasury in their proposals to carry out practical experiments at the South-Eastern Agricultural College, Wye, Kent, in the breeding of poultry for table use. The objects of the experiments will also cover the disposal of the surplus stock of birds on commercial egg farms. In the first place experiments will be undertaken:—

(1) To ascertain the amount of weight and value of weight gained by various breeds and cross-breeds of poultry in relation to the weight and value of food consumed; also the feeding costs of finishing fowls for the table, and the best breeds or cross-breeds to use for this purpose.

.2) To ascertain the most profitable methods of feeding and marketing birds produced as a by-product on commercial egg farms.

(3) To ascertain the value for table purposes of the breeds most generally used by commercial egg farmers, as compared with the breeds and cross-breeds usually regarded as best for table use; also, whether it is likely to be profitable for commercial egg farmers to continue producing chickens for table use, from the birds they usually keep, at times of year other than the usual season for hatching laying fowls, and if so, what are the best methods of feeding and marketing the birds.

These experiments will be begun with a small number of breeding pens composed of the following breeds and cross-breeds:—

White Leghorn.
White Wyandotte.
Rhode Island Red.
Light Sussex.
Indian Game, crossed with Light Sussex.
Silver Grey Dorking, crossed with Light Sussex.

All suitable eggs laid by these birds will, if practicable, be incubated during the whole of the first year of the experiments. The chickens from each breed and cross-breed will be divided in four lots, and marketed as:—

(a) "Petits poussins."
(b) Chickens off the run.
(c) Trough-fed chickens.
(d) Chickens fed by cramming.

The Governors of Wye College have generously provided a site for the experiments on the College farm, and have provided other facilities in connection with them.

It should be added that the investigations are to be carried out as part of the National Poultry Institute Scheme, and that the programme of work has been formulated and the site for the experiments selected by a Sub-Committee of the Ministry's Poultry Institute Advisory Committee. That Sub-Committee will also be responsible for the conduct of the experiments, and for the issue from time to time of reports on the progress of the work. Four of the six existing members of the Sub-Committee are nominees of the National Poultry Council. The Chairman is Principal R. M. Wilson, M.A., B.Sc., of Wye College, and the other members are as follows:—

Mr. Harold Corrie,
Mr. J. H. Dowden,
Mr. A. P. F. Grant,
Mr. Nelson Kenward (nominated by the Ministry),
The Rev. H. Mayall,
Mr. A. S. Juniper (co-opted by the Sub-Committee).
(One vacancy).

Ministry of Agriculture and Fisheries,
10, Whitehall Place, S.W.1.
4th April, 1924.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

E. E. (Chelmsford). Your young cockerels hatched in January could be put on to a fattening mash now, as they would be roughly about ten weeks old. The first thing of impoortance is to shut them in a quiet house, which is not too light, and keep them perfectly quiet. You might give them the following cooked mash, the ingredients should be scalded ,covered up, and allowed to stand for about half an hour:—3 parts middlings, 1 ground oats, 1 barley meal, and half meat meal. You could usefully replace the barley meal or ground oats with cooked potatoes in the same proportion. This should be fed twice daily. Boiled rice or wheat can be given as the last feed. They should be allowed as much food as they will eat in a quarter of an hour, and what they leave should be removed and not left before them. If you could mix the mash with sour skim milk this would be of great advantage, and you could then omit the meat meal.

F. C. (Wickham). The sample of bran is just fair, it has merely been through the rollers twice and flattened out; it does not approximate to the good broad bran which we get from the stonemills. The so-called English middlings are not at all good, and very dear for the money. The sharps are rather better, but even then the price is very high. Thanks for your good wishes. Of course, it is very easy for any writer to say that bran is only fit to stuff dolls and pin cushions with. He would probably not write in such terms if he had had practical experience of its use with poultry.

You ought to visit the trap-nest about once an hour, otherwise you will have some of your birds on too long. About four pullets to one nest is sufficient.

"Perplexed" (Llandrindod Wells). Your description does not tell me enough for me to judge what is the cause of the swelling on the turkey's head. It would really be better for some expert in your neighbourhood to come and see the bird. Bathing it with the stuff you mention would have as much effect as bathing it with milk. It is absolutely useless for the purpose. Try painting it with tincture of iodine. It may then be possible to lance it, but I expect, as you say you had a bad bargain and had been done, it would be better to get rid of the bird.

"Unique" (Kirkdale). Such an egg as you send is not very uncommon. It is merely due to its being retained too long in the oviduct. Possibly this happens when a hen is in a slightly over-fat condition. I am very pleased that you have found the "Handling and Observation" Charts so useful. A great number of our readers write and say that they have repaid them over and over again. One man wrote a month ago and said that he had culled eight birds out of a flock of twenty-eight, and the yield of the flock had not fallen. It simply shows you how necessary it is to get rid of the "duds." Thanks for your good wishes and appreciation of "Eggs."

M. C. (Frindesbury). I really cannot understand your letter. You say that you have been searching our columns for the last four months, and many other books, to find what is wrong with your three hens. What the original cause of the trouble was I cannot say, but to try to cure them at all seems to be a mistake, and I should not think they were suffering from acute kidney disease. I cannot recommend any treatment. Certainly Glauber salts and Easton's syrup are not likely to be of any value. It would be far wiser to kill and burn such birds.

"J. D. B." (Weybridge). The only way in which you can use the flaked maize in a dry mash would be to kibble it as finely as possible and use it in place of maize meal. This would be by far the best way. (2) With regard to the incubator. As your friend used it so successfully last year it is just possible that the eggs were at fault this year and not the machine. Lack of light would not be the cause of the bad hatch, neither do I think it was a question of moisture. You would be wiser not to cool the eggs at all; that we have so frequently stated in these columns. Just turn them and put them back. There is nothing to be gained by cooling. I cannot say whether you are doing wisely in putting the hot damp rag over the eggs as soon as chipping commences. I should think not, particularly as you had the water tray in from the tenth day and you are running the machine in the cellar. I have examined something like 2,000 eggs this season, and it is safe to say that in 70 per cent. of the cases it is the eggs that have been at fault and not the machines.

"Cheviot" (Roxburgh). The sample of bran you send is none too good. It is most difficult to get good bran now. Under the circumstances I would make the mash of:—1 bran, 4 fine middlings, 1 maize meal, 1 Sussex ground oats, and quarter meat and bone meal. If the chicks are feathering too quickly that is an indication rather of lack of ventilation under the hovers or brooders than to anything being wrong with the feeding, and I should be careful to see that they are not overcrowding. The sample of chick feed No. 2 you send is quite a good one.

T. Y. (Thirsk). I cannot tell you what is the cause of the leg weakness with your chicks, unless it is overcrowding. You say that one hover is on an earth floor and the other standing on a wood platform. It is possible there is overcrowding and insufficient ventilation. Have you too many under one hover? There is always the question of feeding, but as a rule this plays a very small part in leg weakness, unless there is digestive trouble, or any deficiency in the foods. You say these always go off at about three weeks old. I should try giving them plenty of exercise and as much green food as possible, and add a teaspoonful of cod liver oil to the mash.

H. W. (Hockley). The sample of clover at 16s. cwt. is a wretched sample, containing very little of the leaf. It is mostly the refuse from the threshing of clover for seed. The alfalfa meal is very dusty, and not a particularly good sample. I do not consider it good value at the money.

A. T. (Midlothian). I could not possibly tell you what was the matter with the hen. I should say she was in a generally diseased condition, and no treatment would have done her any good. Possibly—as you say she has been ailing for some time and going about in a listless way—the disease is of long standing. You should never give hens castor oil, as it does then considerably more harm than good.

Miss I. M. (Inverness). The sample of parings is just fair, and I do consider them good value at 18s. 6d. per cwt. The maize meal is a very poor sample at 13s. 6d. It is certainly not meal. You would have to sift it and get the meal from it. The mixed grain is only moderate—not bad value at the price. The clover meal is a poor sample, certainly not worth 15s. cwt. The bran is just fair. A good sample of alfalfa meal would be much better than this clover. Rough oatmeal would answer in place of the Sussex ground oats, although I should prefer the latter. I am glad that "Handling and Observation" has helped you in judging which hens to keep and which to scrap. I am sorry we cannot reply to non-members of the S.P.B.A. by post, unless a fee of 2s. 6d. is paid.

POST-MORTEMS.

F. G. C. A. The abdomen was flooded with egg material through having produced too rapidly for the yolks to enter the tube.

"Ember." Excessive production. Abdomen flodded with egg material. See other cases reported upon.

E. G. B. If your post-mortem examination had been carried a very little further you would have found the loose egg material which caused peritonitis. More than one case of excessive production and bad time-keeping will be found reported in this number of the paper. 2. No, I do NOT like mangled corpses, because in some instances the cause of death is obscured by such performances.

A. F. C. She was full of dropsical fluid, with jelly in it. The origin of it was interference with the portal circulation of the liver, which organ was degenerate.

G. R. P. This hen was much emaciated and had ovarian disease. It is a pernicious anæmia, caused, it is believed, by an organism that eats up the red blood corpuscles. It usually takes a toll of two to six per cent. and then disappears as mysteriously as it came. It is one of the many subjects requiring investigation.

H. C. (Clanfield). Both chicks had the infectious coccidiosis disease, the bowels having accumulated inflammation products, completely blocking them. Enfeebled by this malady they succumbed to congestion of the lungs. Give fifteen grains of catechu to each gallon of drinking water.

V. O. G. They were both pneumonia cases. The staggering gait and "leg weakness" is due to intoxication, consequent on the state of the blood circulating imperfectly in the brain.

G. R. (Devon). There was no infectious disease. The pullet had suffered much violence. There was extravasated blood in the chest where she had come a cropper, and the heart itself had bled into its outer layers and into investing membrane. There had been haemorrhage into abdomen from a liver that was degenerate and easily broken by the fall, and several fine yolks ripe for laying were ruptured and their contents free in the abdomen, and lastly there was a shelled egg crushed in the uterus.

Miss A. A. B. The chick had pneumonia.

Mrs. B. H. East wind pneumonia I should call it. Certainly not the infectious variety from which so many younger chicken die.

P. S. This chick had coccidiosis, one branch of the caecum was filled with disease products of such advanced composition that one must assume that it was in the egg.

G. A. G. There were no definite lesions of B.W.D. in this chick; a disposition to diarrhoea is not by itself diagnostic.

T. K. Bleeding into the brain or cerebral apoplexy. No "treatment" would have availed. A few small doses of salts might be given to the survivors.

Miss M. B. The symptoms you describe are those of rickets in its early form, and this one was affected, as you might know, by the soft beak, but its illness was due to chill, the bowels as well as lungs being purple with inflammation. This fast-growing breed are not feathered enough to stand the awful winds we have had. Read Mr. Newman's article on Chicken Mortality, a reprint of which you will receive by post.

H. LEENEY.

Brooding and a Brooder.

By M. S. TAYLOR.

Having examined a large quantity of brooders by various makers, I confess to being struck by one point, namely, that in each and all there is an evident lack of thought in their construction, or, perhaps I should say, design. Two or three holes at the bottom, two or three at the top, and the following advert.: "Perfect Ventilation is the feature of our Killemoc brooder." Suppose then I cease with my first condemnation, and attempt to rectify it. Undoubtedly successful brooding depends almost entirely on the ventilation of the brooder. By this I do not mean that we have a difficulty in supplying ventilation, but we have a very real difficulty in supplying it at the *right place*. We find in the better-class brooders nice fresh air three or four inches above the chicks' heads, but it is not round about the chicks' heads, their bodies and legs that we want that fresh air. We want it for the chicks to breathe, to prevent them from sweating, and to force up and out the carbon dioxide gas which they exhale, and which, in numerous brooders, noted for perfect ventilation, re-inhale owing to it being unable to escape. From these remarks it may be gathered that the best sort of brooder is such that provides a continually moving supply of air, without draught and without affecting the heat. I notice some remarks in a recent issue of 'Eggs" regarding heat, made, I think, by Major Hesketh (the remarks, not the heat, were made by the Major). He wonders if the heat supplied in the brooder is used by the chicks in the conservation of their own bodily heat. I really do not think this is likely. If we take into consideration the fact that chicks are being successfully brooded (by "successfully," I mean with an 8-10 per cent. mortality) in brooders run the first week at 90 degrees, the second at 80 degrees, and so on, we see that between the first and second week there is not a sufficient growth of feather (the natural heat conserver) to merit a drop of 10 degrees in the temperature. Further, I think that between these two periods there is a tendency towards a spreading out of the fluff—the original heat conserver. Heat, then, in my opinion, is to supplement the body heat of the chick, not to conserve it.

There are two kinds of heat, a moist heat and a dry one, and I have found that 80 degrees of the former is worth 90 of the latter, and its effect on the chicks more beneficent. The question of moisture, like the other essentials in brooding, has been almost, if not entirely, forgotten by the makers of brooders. The question of the correct humidity of a brooder has not, as far as I am aware, been hygrometerically determined, probably because the folks who do these things have no idea where to begin. Hygrometerical measurements are, however, unnecessary from a practical standpoint, as the chicks themselves will act as hygrometers. I find that they will stand, with beneficial results, as much water or moisture as you can possibly give them, within the limits of reason. The chicks will have a sweated appearance when they are getting too much moisture, and the operator will be well advised to "go easy" when he sees these signs.

It is wonderful how you run away with all ideas of time and space when you settle down to write an article, and as I have to describe a brooder of my design, I had better do either of two things, begin describing my brooder, or ramble on for a few more lines, and describe my brooder next week. As I want to say a few words on leg-weakness, I will, with our Editor's permission, leave the brooder till next week.

There have been many theories advanced as to the cause of leg-weakness; some say it is of dietetic origin, others that it is of climatic origin, while I have even heard that it is hereditary. My own losses from leg-weakness during the past three years are round about three chicks in every five hundred. I have only had one very slight case this season (so I'm touching my head as I "bounce" this), and from some slight experiments made, such as with-holding green food and feeding foods deficient in mineral matter, I am convinced that leg-weakness is not of dietetic origin. Further, as climatic conditions can, to a very great extent, be governed actually in the brooder, I am inclined to rule these out also, and call leg-weakness a brooder trouble. From experiments made this year I am also inclined to think that the particular cause of this trouble is *not* lack of moisture in the brooder, but lack of *ground ventilation*. The little brooder, which I shall describe next week, eliminates leg-weakness and minimises to a very, very large extent, the evils of overcrowding, and I would like readers to understand that it is not patented, that I don't sell necessary parts of it, and that in the designing of it I am indebted to a great extent to my father. When these facts are known readers will be able to make the machine in fuller confidence, knowing that it is not made to boom the designer, or to swell his pockets by the sale of patented parts.

SECOND MIDDLESEX LAYING TEST.

REPORT FOR THE FIRST FOUR MONTHS.

The birds arrived on the 19th to 21st October. They were conveyed in covered waggons to the test ground, and immediately placed under a dry shed, as on all days it rained very heavily. We regret to say that a great deal too many of the birds arrived in lay, with the result that, combined with the journey, and going into fresh quarters, many of them went into a moult. It is undisputed that the weather the last four months has been the worst experienced for many years. The intense cold and easterly winds, rain and snow, have have taxed the vitality of high fecund birds to their utmost, with the result that some of the birds, particularly the White Leghorns, have suffered, especially from the point of view of egg-laying.

Scoring principle:—1st grade eggs, first month, 1⅝ozs.; second month, onwards, 2ozs. Second grade, 1⅝ozs. up to 2ozs., under that they do not count. Each bird is allowed twenty second grade eggs in her score total.

LEADING SIX IN EACH SECTION.

LIGHT BREED (Single Birds).

Pos.	Owner and Breed.	1st grade	2nd grade	Score
1.	J. and A. Moore (B.L.)	66	—	66
2.	Roebuck and Illingworth (B.L.)	65	1	66
3.	J. W. Williamson (B.L.)	60	5	65
4.	F. J. Betts (W.L.)	62	1	63
5.	G. F. R. Lee (W.L.)	58	1	59
6.	J. A. Howarth (W.L.)	55	—	55

HEAVY BREEDS (Single Birds).

Pos.	Owner and Breed.	1st grade	2nd grade	Score
1.	Major E. F. Kingscotte (W.W.)	77	—	77
2.	Lady D. Fraser (R.I.R.)	77	—	76
3.	Mr. and Mrs. E. H. Lade (R.I.R.)	75	1	76
4.	A. Snowden (W.W.)	74	2	76
5.	J. Godfrey (R.I.R)	72	1	73
6.	H. J. Veeger (L.S.)	71	—	71

LIGHT BREEDS (Pairs).

Pos.	Owner and Breed.	1st grade	2nd grade	Score
1.	Mrs. H. Kent (W.L.)	103	9	112
2.	F. E. Tomlinson (W.L.) ...	94	17	111
3.	E. and W. A. Franey (W.L.) ...	110	—	110
4.	E. and W. A. Franey (W.L.) ...	89	4	93
5.	W. H. Hakes (W.L.)	86	5	91
6.	L. C. Turnill (Minorcas)	90	—	90

HEAVY BREEDS (Pairs).

Pos.	Owner and Breed.	1st grade	2nd grade	Score
1.	Major G. T. Williams (R.I.R.)	143	—	143
2.	A. D. Prince (R.I.R.)	139	—	139
3.	A. Prince (W.W.)	130	—	130
4.	G. A. Dawson (R.I.R)	120	1	130
5.	P. E. White (Bg. Rk.)	120	1	121
6.	F. C. Tomlinson (L.S.)	119	1	120

"LEICESTER MERCURY" COUNTY LAYING TRIALS.

The sixth monthly period has shown a considerable increase in the output of eggs, the average yield being 19 eggs per bird. The average per bird for the 24 weeks completed on March 30th is just over 92 eggs. The heavies still maintain their lead, as very little broodiness has occurred to check them.

Lady Dorothy Fraser's pen of R.I. Reds have again made the best pen total for the month: 143 eggs in the 28 days.

LEADING PENS.

SECTION 1. DIVISION A. LIGHT BREEDS (Six Birds).

Pos.	Owner and Breed.	Eggs.
1.	Mrs. Crawford (W.L.)	667
2.	J. and A. Moore (B.L.)	648
3.	T. F. Wildman (B.L.)	640
4.	F. Porter (B.L.)	615
5.	W. Crooks (B.L.)	604
6.	W. S. Woodward (B.L.)	588

SECTION 1. DIVISION B. HEAVY BREEDS (Six Birds).

Pos.	Owner and Breed.	Eggs.
1.	H. B. Howe (W.W.)	696
2.	E. Hill (R.I.R.)	689
3.	T. F. Wildman (R.I.R.)	688
4.	Mrs. E. Briers (W.W.)	665
5.	A. Wright (R.I.R.)	637
6.	Mrs. Hughes (R.I.R.)	626

SECTION 2. ANY BREED (Two Birds).

Pos.	Owner and Breed.	Eggs.
1.	J. T. Kidger (W.W.)	219
2.	J. A. Mills (W.L.)	208
3.	Miss Watton (W.L.)	197
4.	Mrs. Hughes (W.L.)	205
5.	A. Wright (R.I.R.)	208
6.	E. Bland (R.I.R.)	198

CROSS-BREDS.

A VISIT TO MR. TOOVEY.

Last week I paid a long-looked-for visit to Mr. Toovey, inspected his cross-bred stock, and had a long chat with him on this and other matters pertaining to poultry. It will, perhaps, be as well to say at once that in spite of all I saw and heard, nothing occurred to change my views on cross-breeding. Except for a definite purpose, it is to me still a retrogade step, and it is only fair to say that my arguments entirely failed to convince Mr. Toovey, and equally fair to add that his cross-breds are giving him a better egg average than his pures did, and he is convinced that there is a much lower mortality. However, it is not intended here to argue the question, and there is no need to repeat what has been said before.

I was very much interested in the various crosses, particularly in the Houdan-Leghorn. This, although not a very good winter layer, promises to be the most prolific of them all. They are an extremely useful looking bird, favouring the Houdan type rather than the Leghorn. The crest was, of course, always evident, but as one would expect, much smaller than in the pure Houdan. The fifth toe appeared in nearly every bird I saw. There were one or two exceptions, and some of the birds only grew it on one leg. The cockerels from this cross make high-class spring chickens. In colour the majority of the birds were white. There were many showing black feathers, a few blues and blacks. The heavy crosses, such as White Wyandottes and Rhode Island Reds, give the best winter layers, but, as one would expect, there is a greater tendency to broodiness. They are big hefty birds, varying considerably in colour and in shape—rather a blend of the two breeds. White Leghorn-Light Sussex make an excellent cross, the birds being most pure white, and rather favouring the Sussex type. Mr. Toovey thinks that Leghorn cockerels, mated to Wyandottes, Rhode Island Reds, or Sussex, give the best general purpose cross. All the hatching is done under hens, as our readers are aware, and the mortality to date is just over 10 per cent. Hatchability is none too good, the percentage of dead-in-shell being rather high, but we must remember that the north-east winds have prevailed.

Mr. Toovey has a large number of ducks, and finds them very prolific layers, but he considers that labour costs are much higher, and they consume a much larger quantity of food than a hen.

From his largest unit of 170 cross-breds, the average production for the full year, 1923, was 173 eggs. These are composed of Leghorn crosses mainly with White Wyandottes, R.I. Reds, and Light Sussex.

I had a most interesting talk with Mr. Toovey on the question of Ventilation and Roup. In spite of his large stock, he tells me that he does not dread an outbreak of the disease, and as a means of prevention he relies on the proper ventilation of his houses. Some years ago he had a bad outbreak on the farm, and, notwithstanding all precautions, losses were heavy. At last, one morning, his man came to tell him that an outbreak had occurred in his Faverolle house, which had previously been exempt. Then Mr. Toovey took what he thought at the time was a desperate step. He tried back ventilation, and that stopped it. Since then he has adopted back ventilation in all his houses, which are (writing from memory) 14 feet deep. There are a few cases where odd individuals get roup, but there has never been anything like an outbreak, and it only shows the value of pure air in dealing with diseases of the respiratory organs.

The trouble with most of our lean-to houses is that they are too low at the back, consequently there can be no back ventilation without draught, and if there is no back ventilation the birds roost in a pocket of bad air—result—roup.

I was interested in the rearing. All chicks, as my readers know, are "naturally" reared. I have heard some of the big unit men talk of the cost of labour in rearing units of 100. I wonder what they would say to Mr. Toovey's system of rearing in units of 15 up to six weeks old? Yet it is done, and the labour is not excessive. It is all a matter of planning. On our own farm we rear in units of 80 to 100, and when I tell people this, they say: "But what of the labour?"

Mr. Toovey is going to try a second cross, 80 White Wyandottes x R.I. Reds are to be mated to six White Leghorn cocks, direct from Frank Snowden. It will be very interesting, and we shall see whether inherent high fecundity of the males will be lost in the cross.

LANCASHIRE ENTERPRISE.

LANCASHIRE EGG PRODUCERS, LTD.

The balance sheet of Lancashire Egg Producers, Ltd., makes good reading. The Chairman of Directors (Mr. Tom Barron) was able to tell the shareholders that "Success has now been definitely established by the Company as a result of operating on a commercial scale for the past ten months. During this period hundreds of customers have been supplied, and the Company's eggs now find ready purchasers at the best prices. Notwithstanding the very great difficulties the Company had to contend with, the directors have now succeeded in firmly establishing the business on a sound commercial basis, and the directors are satisfied that the scope of their policy is practically unlimited in its application, and future extensions include collecting and distributing stations As a result of developments the Company has now entered the profit-earning stage."

The accounts covered a period of ten months, and a nett profit of £157 10s. 0d. was made. The shareholders received a dividend of 5 per cent. During the period under review (ten months), 4,754,160 eggs passed through the Company's hands. So far the Company have succeeded in obtaining an average increase of at least one penny per dozen on the price of eggs for its shareholders—no small feat on a market with a decided tendency to fall, at the same time having regard to the existing depression in the cotton trade. The Company will extend its operations any distance where there is a reasonable quantity of guaranteed English, Welsh, or Scotch new-laid eggs.

Two officers of the Ministry of Agriculture had been sent by the Ministry to obtain information. A short article was issued by it to the Press. The following is an extract:—

> "The price agreed to be paid the producer is usually a little above that ruling in the Lancashire district at the end of each week. There seems little reason for doubt that the activities of the Company HAVE MATERIALLY RAISED THE PRICE WHICH PRODUCERS OBTAIN FOR THEIR EGGS."

When I was at Preston I visited the premises of the Company, and testify, if testimony be needed, to the efficient manner in which the business is transacted. I was especially pleased to see the testing and grading of eggs, and felt that not the least good that was being done was the securing of the good reputation of the English new-laid egg.

There is not a reader of "Eggs" who will not wish the Company success, for this is the sort of enterprise that is wanted at the present time.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

FIFTH MIDLAND LAYING TEST.
(DURATION 140 DAYS).

FIFTH MONTH, FEBRUARY 25th TO MARCH 23rd.

A marked improvement in weather conditions the latter end of this month has shown a consequent increase in egg production, the highest daily percentage reached being just over 70 per cent.

This increase has been more noticeable amongst the light breeds, the average production of White Leghorns increasing from nine to fifteen eggs per bird.

There has been frequent lengthy spells of cold weather, largely composed of severe easterly winds and dry frost, which, as might be expected, considerably affected egg production.

The lowest temperature recorded was 28 degrees Fahr., the highest 38 degrees Fahr., the mean being about 33 degrees.

There has been very little sickness, two birds, Nos. 81 and 5, with chicken pox, and No. 235 with a cold.

Two birds, Nos. 166 and 330, have died during the month.

The entire mortality losses since the test commenced totals four birds only.

ALBERT H. BRAIN, Head Manager.

TOTAL SCORE FOR FIVE MONTHS (140 DAYS), AND FINAL POSITION IN SECTION. FIRST SIX PENS.

W. LEGHORNS (Four Birds).

	No. of Eggs Laid.	Value.	Pos.
C. H. Hudson and Son, Coventry ...	311	£3 16 5	1
E. Harrison, Knutsford	295	£3 10 3½	2
H. Boxall, Dorking	289	£3 9 6½	3
Capt. Rutherford, Staplehurst	279	£3 7 11	4
Williams and Mees, Wormley	275	£3 5 6¾	5
Clophill P.F., Ampthill	262	£3 3 2¼	6

W. WYANDOTTES (Four Birds).

	No. of Eggs Laid.	Value.	Pos.
H. W. Gee, Bromsgrove	447	£5 9 6¾	1
Fowler Bros., Earlswood	429	£5 6 5	2
S. and T. Greenall, Grantham ...	374	£4 13 4	3
Ashbrooke and Brook, Sandbach ...	353	£4 5 1¾	4
G. K. Rayner, Grantham	337	£4 2 3	5
Tom Barron, Catforth	336	£4 1 9½	6

R.I. REDS (Four Birds).

	No. of Eggs Laid.	Value.	Pos.
Major Kingscote, Newport Pagnell ...	314	£3 18 6¾	1
Easton P.F., Norwich	276	£3 6 2¼	2
Wilson Beattie, Northampton	270	£3 4 8½	3
Miss M. Grehan, Banteer	273	£3 3 11	4
A. Merchant, Shipston-on-Stour ...	272	£3 3 1¼	5
William Currie, Deskford	265	£3 3 1	6

LIGHT SUSSEX (Four Birds).

	No. of Eggs Laid.	Value.	Pos.
Fred Gardner, Stalham	313	£3 15 5	1
F. B. Welch, Bewdley	262	£3 3 4	2
Mr. and Mrs. Jacobs, Chatham ...	241	£2 17 0¾	3

A.O.V. LIGHT BREED (Four Birds).

	No. of Eggs Laid.	Value.	Pos.
M. H. Brady, B'ham (Anconas) ...	244	£2 15 10	1
G. C. Woodbridge, Gt. Shelford (An.)	231	£2 14 6¼	2
R. B. de Vere Packford, Sh'ld (B.L.)	192	£2 7 0¼	3

A.O.V. HEAVY BREED (Four Birds).

	No. of Eggs Laid.	Value.	Pos.
H. Thomas, Wardle (Buff. Orps.)...	265	£3 6 4¼	1
Wm. Hammett, Blackpool (B.R.) ...	211	£2 9 11½	2
Major Shewell, Cleve Hill (B'velders)	191	£2 4 5½	3

Some Fruit Growing Notes to Help Poultry Keepers.

By F W. WHEELER, F.R.H.S.

"Comments on the article, 'Experience Teaches,' on page 235, must, unfortunately, be held over until the next issue.

JOTTINGS.—Just a few odd remarks by way of a change, instead of devoting an article entirely to one subject.

I expect those who have been tending and watching their trees will have found one consolation for the frosts and continued cold weather, in seeing that the fruit buds and trees are generally in a backward condition, and, consequently, reasonably hoping for a good year of fruit, especially if the usual winter attention has been given to the trees.

The fortnight of bright sunshine early in March, gave a fine opportunity to push on with pruning; but, in particular, with spraying. The many days with hardly any wind were ideal for that work with winter washes. It allowed the chemicals to do their work on the moist lichen before being weakened, and rendered almost useless, as is sometimes the case when rain follows on our heels.

One cannot always wait for the still quiet days when wanting to spray, and if compelled to work when wind and breezes are a little troublesome, I have found it a good dodge, in order to keep the chemicals off the face and clothes, and at the same time to do the work thoroughly, to stand sideways to the wind (not backing it), and then point the nozzle of the sprayer towards the wind, keeping it on the lee side of the branch. This will thoroughly cover the side which would not get wetted by the spray, if standing back to the wind, and yet you will find that the wind will blow back again sufficient spray to cover the wind side.

This seems a small matter, but much chemical can thus be saved; and it also means time as well, because the refilling of sprayer has less often to be done.

Before these jottings are read the trees will be too far advanced for any more spraying with caustic soda emulsions, but the lime-sulphur spraying will be following on (then one's oldest clothes want to be brought into use, or a smock is very good).

I have a few old Monarch plum trees here which at first gave me some trouble with the falling off before ripe, and at the same time they shed all their leaves; but several applications of lime-sulphur spray have made a great change, and last year I had quite a good crop. Some damson trees were treated in a similar way, and to good effect.

Several old apple trees, which also had large numbers of spurs with good fruit eyes, were almost spoilt by growth of lichen (through neglect of my predecessor). These now give promise of finer fruit since I have been generous with lime-sulphur.

By-the-bye, this wash has been found very useful to check the big-bud mite on black currant bushes if applied when new leaves are about the size of a sixpence, and at a strength of 1 in 12. An absolute cure is not yet known.

While at this spraying or pruning work it is interesting to note results of earlier experiments or renovation efforts. Let me give one. Some James Grieve trees, planted in heavy soil, were found to be badly cankered, and I had treated the wounds with the dressing of Stockholm tar and creosote. These responded splendidly to the treatment and some large scars now show the bark nicely healing over, and gradually covering up the sores. Of course, I first cut away all the swollen and diseased bark until I came to clean and healthy parts. It is interesting, as some fruit growers object to the use of creosote, and advise thinning the Stockholm tar with paraffin.

While speaking of dressings for wounds I read something that may be of particular use to poultry-keepers growing fruit, and now pass it on. An experiment in America has been made with the use of Silicate of Soda, and found to be very effective. Proportions were three parts of "commercial water glass," to one of water. It is said "to form an insoluble cover to the wounds, which is impervious to the weather and prevents the ingress of fungi and other destructive agencies." It will certainly be a remedy always ready to hand for the combined poultry and fruit farmer, and a far less dirty dressing to handle than the tar compounds. The latter likewise have the disadvantage of requiring to be heated in cold weather, or they will not spread easily.

(To be continued).

Correspondence.

IMMUNITY.

To the Editor of "Eggs."

Dear Mr. Newman,—I have been very interested in your recent articles dealing with breeding for immunity from disease in chicks and adult birds. I fully agree with you and Mr. Meekings that trouble largely starts in many of our present-day brooding arrangements. This leads me on to think that there is a word of warning showing in many of our modern methods of poultry farming, and that word is **MODERATION.** By this, I mean that, in my opinion, we are getting too far from nature in many ways, and are asking too much from our humble servant, the hen.

Many of us breed in large numbers, and house in large numbers, with a view to cutting down our own labour, but we still expect more from our birds than ever. We try by use of the trap-nest to attain a flock average of nearly 200 eggs, and we breed from hens which have laid up to 250 eggs or more in their pullet year, too often without regard to the bird other than her egg record. Is it not probable that the trap-nest would be better used to help us discard as breeders these birds laying over 200 eggs, except for a few particularly strong birds with slightly higher records for cockerel breeding, and limit our breeding pens to birds with records 170 to 200 and good-sized birds at that? I think we should still get flock averages just as satisfactory.

Now to take many of our modern brooding methods; in many cases chicks are reared in batches of two or three hundred even up to five hundred or more, usually under hovers, where the air is neither natural nor good. I know that sometimes when the weather is kind mortality is low, but I venture to suggest that too often it is far too high, and if 15 or 20 per cent. die, is it not reasonable to suppose that the remainder have had a severe shaking, and are correspondingly weaker in constitutional vigour? I think we should do far better to breed in much smaller units, and see that our birds get more fresh air and less foul air, both of their own making and from the brooder; also to run our adult birds in smaller flocks where all can get an equal chance for life without continual crowding and jostling.

Feeding is a question I will not say much about, except that there are now many very high priced foods being used to supply our birds with the necessities for carrying on against the unnatural demands we are making on them. Probably we should do far better if every poultry run at present growing grass, was ploughed up and growing greenstuff for them to feed on "ad lib," and **loose earth** they could scratch into. There is very little feed in grass for many months of the year, and a bird cannot possibly get at the soil for her natural food in the average poultry run covered with a thick mat of coarse grass. Just go out and dig up a bit, and see your birds run for it.

I know this letter is largely theory, and will be laughed at by many who practise with success the methods I am against, but how long will this success last, what are our birds generally going to be like regarding health and stamina in 20 years' time? One sees reports of leg-weakness, B.W.D., and other horrible things more and more each season; many preventatives are suggested—mostly contradictory. Most of our Laying Test reports mention disease, and under-sized birds; and the number of eggs the ducks are laying now makes one wonder if ducks will always be as hardy and easy to rear as they are now.

I do not want to appear pessimistic, because I am not, nor do I want to do away with our modern pedigree flocks, but I do think we should hear far less of disease if we were all to bear in mind the word **MODERATION** in all our methods.

IMMUNE.

"PEDIGREE" UTILITY POULTRY.

To the Editor of "Eggs."

Dear Sir,—Is there any accepted definition of of "pedigree" utility poultry?

I notice that the term is used very loosely by many poultry-farmers, and only a short time ago a large poultry-farmer told me that all his stock was "pedigree utility," although he never used trap-nests, and had never heard of pedigree boxes or trays in an incubator.

It seems to me that the primary qualification for the word "pedigree," as applied to a bird, is that its own dam should be known as well as her record, and its own sire and his dam's record, and that birds merely marked to the pen of breeders from which they spring have no right whatever to the description—"Pedigree."

To mark individual chicks to their dam means a great deal of hard work and organisation, and is an expensive undertaking, for it often happens that in order to save valuable chicks which may have hatched earlier than the others, the pedigree boxes have to be moved before the whole hatch is finished, a step which is very prejudicial to the remaining eggs; and, further, the attention to detail throughout the whole year in recording any peculiarities in the breeding stock, to say nothing of the comparatively simple process of trap-nesting, all of which are requisite for genuine pedigree breeding, make it desirable both in the interests of the buying public and of the genuine pedigree breeder that the inaccurate use of the expression should be strongly discouraged.

It is a far more simple matter to hatch 2,000 chicks from general flocks, or even from special pens than to record individually half that number—the work is harder and the risk is greater, but the chicks hatched are, of course, of greater value for their individual antecedents are known and their prospective performances are to a far less degree a matter of pure chance.

I imagine that pedigree breeders will share my views that a very strict definition is essential if the word "pedigree" is to have any real significance at all.

Yours truly,

ROBERT C. B. LETHBRIDGE.

BUTCHERS' BLOOD.

To the Editor of "Eggs."

Sir,—In this last week's issue of "Eggs," "H. K. L." (Boxhill) asks about butchers' blood. You rightly say, in answering, that it is a troublesome job.

May I offer a better and more easy method. As butchers' blood clots almost immediately, he will have a job to mix the middlings at all, but he can cut it out into small pieces, and put it into an old pot or kettle, and **boil it well,** when it will crumble up quite easily, and can be rubbed into the middlings at the rate of 5 per cent. He will find it less trouble, and it answers well.

I have used it this year for my pullets, and they have done well on it as a substitute for fish meal, or meat meal. I use your formula (dry mash), and blood costs nothing, only the trouble. I started using it when I was short of fish meal, and it was a choice between blood and the rubbish sold by the shop-keepers here.

Yours faithfully,

J. E. G. ASTON.

BROODER TROUBLES.

To the Editor of "Eggs."

Dear Sir,—Re your correspondent, "H. A. Hardifier," in "Eggs," the 26th ult., I note that he entirely disagrees with my system, owing to the fact that he met disaster when working on a different system. Had he worked on the same method as I recommended and failed he would have had reason to disagree. If I practised the method he mentions in some parts of my field my chicks would undoubtedly be drowned the first night. There is a vast difference between chicks on the earth floor and those on a frame covered with hay let in a boarded floor six inches or more above the ground. I consider that he may be correct in assuming his trouble to access of moisture. I should have the same trouble myself if I practised the system he complains of—a system which I consider is courting trouble, as the chicks' bodies are in contact with the earth direct. The moisture my chicks get is carried by the air; that is not 90 degrees to 80 degrees as in the case of the hover standing on the earth floor.

It is surprising that his chicks should have looked "a picture" while the conditions under the hover were maximum temperature and maximum moisture. One must bear in mind, as regards moisture supply, no hard and fast rule can be laid down, one must work according to one's particular conditions, as in incubation.

The hover I use is as recommended by Mr. Meekings in last year's Register—6 ft. x 6 ft. colony house; the wooden floor is about 6 ins. off the ground, a section is cut out 2 ft. square, replaced by a frame of half-inch netting on top, hessian canvas on the under side of the frame, and one may fix additional frames of canvas if conditions demand it. One must judge their own conditions and apply canvas frames accordingly.

I note many correspondents are coming to the same conclusion as myself, and I wonder after reading past and the correspondence in this week's "Eggs" if "H. A. Hardfier" still disagrees with "A Little Man."

If you will permit me to switch over to C. E. B. Philcox's letter on "Moisture re Incubators," I had a hatch of 48 chicks out of 52 fertile eggs, I dipped these eggs in warm water of 100 degrees on the evening of the 19th day; some of these eggs were fourteen days old. I may mention that I applied moisture the beginning of the first week, applied again the end of the second week, and had the dip on the 19th day. My reason for doing this is that the hen sits tight first few days, her body heat is in closer contact with the ground, resulting in greater humidity around the eggs at that period than there is the second week, when she sits more loosely owing to the eggs having developed animal heat; they do not relieve her high body temperature as they did the first few days, and owing to the fact of her sitting tight the final two days, which I conclude is due to the mother instinct of the bird, on hearing that sweet little chirp from the eggs beneath her, which causes a greater amount of moisture around the eggs at the final period than at any other time, as the eggs are not only warmer but in a more absorbent state. That is why I give them a dip.

I believe the moisture in the beginning helps to conserve the oxygen in the albumen and viscular acris at a period the embryo is not drawing outside oxygen.

I trust I am not indulging too much on your valuable space.

Yours faithfully,
"THE LITTLE MAN."

INFLUENCE OF THE RATION FED.

To the Editor of "Eggs."

Dear Mr. Newman,—With reference to feeding extracted soya bean meal in wet mash and its effects as regards Prussic Acid, the following may be of some use to you. I have fed soya bean meal in wet scalded mash to 300 birds this winter, and my losses have amounted to fourteen birds, mostly those with weak stamina in laying houses that have been noticeable for heavy production.

I have been inclined to put the blame upon the mash, and, in particular, the soya bean meal, but certainly not to prussic acid poisoning, the effect of which is instantaneous in the case of a human. One whiff of the pure acid causes complete paralisation and death in about twenty seconds, and a small portion of a 2 per cent. solution will have a like effect on dogs varying from above time to one minute, and anything like the above symptoms and action was entirely absent from my birds, whose deaths I would really put down to liver trouble, as post-mortems showed this organ extremely unhealthy, and days elapsed before death, and, as I mentioned before, no sign of complete or partial paralysis similar to that caused by prussic acid was noticeable.

As this is only a layman's opinion, it would no doubt be of great benefit to know from a reliable source:—

(1) If prussic acid affects birds as animals?
(2) If so, would repeated minute doses result in liver trouble, and finally death, without paralysis?
(3) What were the symptoms in case of 50 birds lost by Mr. H. M. Timpany?

Yours sincerely,
G. G. FOULSTON.

THE VALUE OF ORGANIC IRON IN POULTRY.

To the Editor of "Eggs."

Dear Mr. Newman,—I have read with much interest the letter from Mr. Philcox in your issue of April 2nd, and perhaps, as he specifically refers to me, a few words on the subject of iron may be of interest.

As he says, combined iron exists in two forms: (1) Inorganic, as sulphate, perchloride, carbonate, etc., and (2) organic, chiefly in combination with proteins, but also as salts of vegetable acids. Most of the iron present in the body is found in the red cells of the blood, united with a protein to form hæmoglobin, which enters into loose combination with the oxygen present in the lungs and conveys it to the tissues. It is also an essential constituent of the chromatin present in the cell nuclei, and therefore of the chromosomes. The yolk of the egg contains a good deal of iron in organic combination. It is, of course, required for blood formation in the developing embryo. In foodstuffs we find iron in organic combination in the germs and outer layers of seeds; thus maize germ, wheat germ and bran contain considerable quantities, while green vegetables, more especially spinach and to a lesser extent lettuces, are good sources. A great deal of experimental feeding has been done in the case of laboratory animals by Bunge and Abderhalden in Germany, and by other observers elsewhere. Sherman summarises their conclusions by saying that hæmoglobin is derived essentially from the iron compounds of the food (i.e., organic iron), while inorganic iron, such as sulphate of iron, given in the drinking water, acts mainly, if not entirely, as a stimulus to the blood-making organs. Organic iron in the form of dried blood is not quite so useful as that derived from the sources above named, but is very much better than that from inorganic sources. Seeing how very essential is a sufficiency of iron in the composition of the yolk, and what an important role is played by green vegetables in supplying this, we may perhaps attribute some, at any rate, of the superiority of birds on free or fairly free range as breeding stock, to this cause, because the importance of an adequate supply of green vegetables, whether freshly cut or dried, is not always recognised by the backyarder.

As regards the colour of the legs to which Mr. Philcox refers, I do not think that iron is involved here, the pigments concerned are rather complex organic bodies soluble in fat. As he is rightly impressed with the importance of fat in the dietary of the heavy layer, this loss of pigment has been delayed, but I make little doubt it will in due course make its appearance.

With regard to his suggestion about drying watercress. This seems rather unnecessary, because it can usually be obtained for the greater portion of the year in the fresh state.

One of the advantages of feeding iron in vegetable form is that we are not at the same time feeding too much protein fat or carbo-hydrates as if we were to rely solely for iron on such substances as meat meal and germ meals.

F. W. HARDY.

Notes on Utility Ducks.

By A. HAROLD PAINE.

I wrote exhaustively on feeding during the winter of 1921-22, but we have so many more thousands of readers now that I might just repeat briefly some of the mashes for laying stock that I then gave. They are those given by our leading breeders, some of whose birds have achieved the highest successes in the Bentley Laying Tests. Which mash may be the better is a matter of opinion—probably for egg production they are about equal:—

No. 1.—Parts by measure: 1 bran, 1 kositos, 3 midds., half meat meal.

No. 2.—Parts by measure: 2 Sussex ground oats, 3 pea or bean meal, 2 barley or maize meal, 4 midds., 1 fish or meat meal.

No. 3.—Parts by measure: 6 sharps, 2 S.G.O., 1 maize germ meal, 2 Uveco, 2 bran, 15 per cent. fish meal.

No. 4.—Parts by measure: 3 bran, 3 midds., 3 S.G.O., 1 fish meal.

No. 5.—Midds. 23 lbs., bran 9 lbs., clover meal 5 lbs., maize meal 8 lbs., fish meal 10 lbs.

No. 6.—Midds., maize meal, ground oats, bran, cooked swede, kibbled maize, whole oats, fish meal, nettles. The swedes, nettles and whole oats are put in the copper and covered with water, and the bran placed on the top to form a lid. This is boiled for several hours, the bran remains at the top and so gets well steamed as the remainder is boiling. When thoroughly cooked it is taken out to cool and the other dry ingredients mixed with it until the whole is "crumbly." No hard and fast formula can be given as the mash varies according to the price of food stuffs.

No. 7.—Parts by weight: 2 bran, 4 midds., 1½ S.G.O., 2 Uveco or maize gluten, 1 fish meal.

No. 8.—Parts by measure: 1 good wheat bran, 1 S.G.O. or crushed oats, 2 midds., ¼ maize meal, ¼ clover meal, 1 chopped boiled cabbage, 10 per cent. fish meal calculated to the total food given.

No. 9.—Equal parts by weight of bean meal, maize meal, wheat meal, barley meal, ground and blended together at mill and 20 per cent. fish meal added.

It will be noticed that there is considerable variety here, giving breeders the opportunity of compounding a mash of the ingredients most easily obtainable in their locality. With the mashes in question a morning feed of grain may be given if the birds are penned, but if they are on free or large range then a moderate mash fed at night should be sufficient. What that quantity should be depends on circumstances. For my own part we find that a closed handful of grain to each two birds in the morning and about 5 ozs. (dry weight) of mash for the evening meal about meets requirements, but it is for those who have charge of the birds to watch them carefully and to adjust feeding according to egg production, season, and other conditions.

POST-MORTEMS—Continued.

E. C. The W.W. pullet was the victim of tuberculosis and as gross a case of the acute and generalised form as one could see. It had long been chronic in the spleen and uterus, and finally the liver was filled with tubercles. You may have seen the liver yourself, as one leg had been divided from the body and a portion of liver left in view. No, she could not have laid for months past, but was daily sowing the seed of disease in the droppings. You will find a useful summary on the subject of tuberculosis in fowls in Leaflet No. 78. issued free by the Ministry of Agriculture on application to the Secretary, Whitehall, S.W.

C. O. (Oxon). The hen had heart disease (Angina pectoris). This reply has already appeared, but we were unable to decipher your initial, so that you may not have recognised it.

D. S. A. (Althorne). Peritonitis, caused by crushed yolks free in the abdomen.

A. J. W. These chicks had tubercles on and in the substance of the heart. I have received numerous cases lately of these in hearts, livers and gizzards. They are not mentioned by any avine authority, and I have sent on some to Mr. W. Wm. Scott, F.R.C.V.S., Bridgwater, asking for cultures to be made in his admirably fitted laboratory. He is, by the way, the pathologist to apply to for serum work or vaccines, as he is our greatest authority on serum-therapy.

K. K. The hen had ruptured a large vein while straining to lay an egg of unusual size.

P. C. Rickets, in its worst form. It is frequently not recognised in chicken. They may have the necessary elements in food and yet be unable to appropriate them. Give plenty of lime water and green foods reputed to contain vitamins.

Enquirer S.S. Fatty degeneration of the heart, and loading of fat upon it. Inflammation of the uterus led up to the failure of so incompetent a heart, which might otherwise have served for some time.

E. G. L. Pneumonia in both cases.

Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Hill, Edwin J., Pendlestone, Thundersley, Essex.
Miss M. Bloomfield, Horsepen, Beckley, E. Sussex.
Abbott, Wm. H., 33, Westfield Road, Wigbaston, Birmingham.
Medcalf, Miss A., The White House, Aldborough, Norwich.
Crowther, L. J., The Elms, Pulborough, Sussex.
Kyrke-Smith, Miss G., Parsonage Farm, Elmsted, Nr. Ashford, Kent.
Soames, Mrs. G. M., Long Buckby Wharf, Rugby.
Sanders, T. H., Post Office, Warkleigh, Umberleigh, Devon.
Davies, John, 5, Davies Row, Treboeth, Nr. Swansea.
Adindesff, A., Hilsersum Poultry Farm, P.O. Cedarmont, Transvaal, S. Africa.
Stone, Mrs. G. M., Appleby St. Farm, Cheshunt, Herts.
Grimes, J. E., Sandywood Poultry Farm, Formby, Nr. Liverpool.
Andrews, C. de J., Lyndhurst, Kettlewell Hill, Woking.
Knowlton, Ed. E., Worthys Farm, Brockenhurst, Hants.
Thompson, Mrs. F., The Hollies, Halewood, Liverpool.
Heinze, A. J., "Fernlea," Hockley, Essex.
Bruce, Miss T., Edgehill, Ponteland, Newcastle-on-Tyne.
Cross, Miss A. B., 8, Arcadia, Elburton, Devon.
Daffarn, F. J., "Oldfield," Eversley Park Road, Winchmore Hill.
Middleton, B. McL., Stafford House, Ifield, Sussex.
Strauss, E. A., Estate Office, Kingston Bagpuize, Abingdon, Berks.
Ness, Miss D. Y., Pinelea, Helensburgh.
Vawdrey, Miss T., Plas Gwynant, Carnarvon.

NATIONAL POULTRY COUNCIL.

MEETING AT THE HARPER-ADAMS' AGRICULTURAL COLLEGE.

The quarterly meeting of the National Poultry Council was held at the Harper-Adams' Agricultural College, on Thursday, April 10th, the President, Mr. Stanley Street-Porter, being in the chair.

A cordial welcome was extended to the delegates by Mr. W. Lander, Chairman of the Governors, who said that poultry was becoming more and more a source of income to agriculture. He thought they could say the College was the Home of the Council, for the scheme was started there under their late Principal (Mr. P. Hedworth Foulkes), and he was very proud to say that, and pleased to know how much good work the Council had done during the short period of its existence.

The President, in thanking Mr. Lander for the kindly welcome, said that when they came to Harper-Adams they felt as if they were coming home. The College authorities had set an example to other teaching institutions. It took the initiative when the Poultry Industry was only looked upon as a hobby. In the very room in which this meeting was held the initiative was taken for the formation of the National Poultry Council, which had made great headway, and was the best organisation of its kind in the world. They owed a great deal to the sympathy which they had received from the past and present principals.

It was with great regret that they heard of the serious accident which had happened to the son of Mr. Foulkes, and he felt sure that it would be the unanimous wish of the Council that a message of sympathy should be sent to Mr. and Mrs. Foulkes, and the sincere wish of the Council expressed for the speedy recovery of their son.

A letter was read from Mr. Tom Barron, expressing his thanks to the Council for a letter he had received from the Secretary expressing regret at his resignation.

REPORT OF THE EXECUTIVE COMMITTEE.

Report of Executive Committee to National Poultry Council, Harper-Adams' Agricultural College, Newport, Salop. Thursday, April 10th, 1924.

In consequence of the delay in holding the last Council meeting, the report now to be presented is briefer than usual. One meeting of the Executive Committee has been held in the interval, and from it various recommendations will be made which are not included in this report.

Affiliation.—The following applications for affiliation have been received and approved:—

Surrey Agricultural Committee.
Carnarvon Federation of Women's Institutes.

Patrons.—The following new patrons have been registered since the last meeting of the Council:—

Messrs. Chamberlain, Pole and Co., Ltd., Union Street, Bristol.
Mr. Wilfrid W. Woodward, Frome Valley Poultry Farm, Bishops Frome, Worcester.
Messrs. Buchanan and Prentis, Barneys, Guist, S.O. Norfolk.
Major A. Brewis, Overton, Hants.
The Hon. Lady Hulse, Breamore House, Breamore, Hants.

A question has arisen as to contributions received during the last five months of the financial year. It is recommended by the Executive Committee that in the case of new contributors between January 1st and April 30th in each year, these shall be deemed as covering the following financial year.

A question has arisen with regard to delay in payment of contributions, both by affiliated societies and patrons. The constitution provides that "Any society, federation, club, institution, or patron whose subscription shall not have been paid by June 15th, shall have further notice sent to it, and if the amount is not paid within ten days, the name will be removed from the membership roll, and shall not be eligible to send delegates or attend the National Poultry Parliament. Only upon payment of all arrears will the society, etc., be restored to privileges of the Council."

This has not been adhered to rigidly hitherto. Consequent, however, upon delay in payment of subscription it is desirable that some definite policy should be adopted by the National Poultry Council. Several instances have occurred, in which names have been retained upon the list, and communications sent regularly. After a prolonged period, in some cases as much as two years, intimation has been received that it was desired by the society or patron to withdraw. The arrears do not amount to a large sum of money, but it may be mentioned that both time and money is expended in sending out notices, etc., which could be saved if subscriptions were paid promptly, or intimation given in accordance with the constitution when societies or patrons did not desire to continue.

Reports will be presented by various committees, and are commended to consideration by the Council.

Income Tax.—Up to the present time the solicitors of the National Poultry Council have not been able to secure hearing of the appeal which has been decided upon in relation to this question. The various points, however, for argument have been placed before the Council, and it is hoped that at an early date the matter may be brought into court.

Rating of Agricultural Land.—The test case, to which reference was made in the previous report of the Executive Committee presented at Hereford, was heard by the Huddersfield Magistrates on March 11th, when judgment was given in favour of the plaintiffs, Messrs. Whitwan Bros., of Golcar, Yorks, and on whose behalf the National Poultry Council had undertaken the action. As already published in the Press, the bench gave judgment in favour of these small-holders, who are poultry farmers, and decided that they were only subject to pay a quarter of the rates in the pound in respect to the land occupied. In the judgment, however, it was stated that:—

> "The Bench wish to make it clear that their decision is based on the special facts of the case, and has no bearing on the general point discussed during the argument as to whether a poultry-farmer, pure and simple, would be entitled to the relief granted by the Act of 1923."

In spite of what is here set forth, it may be assumed that the same decision would be come to if a case were tried of a poultry farmer, pure and simple because in the Small Holdings and Allotments Act, 1908 (8 Edward VII., chapter 36), in Section 61, that reads:

> "The expression, 'small holding' means an agricultural holding which exceeds one acre, and either does not exceed fifty acres, or, if exceeding fifty acres, is at the date of sale or letting of an annual value for the purposes of income tax not exceeding fifty pounds."

In the same section it is stated that:—

> "The expressions 'agriculture' and 'cultivation' shall include horticulture and the use of land for any purpose of husbandry, inclusive of the keeping or breeding of live stock, poultry, or bees, and the growth of fruit, vegetables, and the like."

It, therefore, may be taken that this would cover cases of poultry farmers who do not keep any other class of stock.

Merchandise Marks Bill.—As will be reported by the Parliamentary and Marking of Imported Eggs Sub-Committee, an amended Merchandise Marks Bill, which contains provision for the marking of all imported eggs, passed its second reading in the House of Commons on March 7th, and was referred to committee for further consideration. Steps are being taken to bring influence to bear upon Members of Parliament in the subsequent stages. The Executive Committee hopes that this Bill may be carried during the present session of Parliament.

Credit Facilities to Societies.—The deputation appointed by the Council at its last meeting had an interview with a representative of the Minister of Agriculture and Fisheries with respect to the extension of Credit Facilities to Societies enabling them to finance the preservation of eggs, and this question is now under consideration. Further arrangements are being made for a conference with the Agricultural Committee of the House of Commons to receive a deputation at an early date.

(Signed) A. J. WALKER.

FINANCIAL STATEMENT.

A resolution was submitted by Mr. A. J. Walker, Chairman of the Executive Committee, with reference to the Secretariat. He said that Mr. Brown was feeling the strain of the heavy work, and there were two proposals before the Council:—

> First: "That Mr. Edward Brown and Mr. A. H. Brownson be appointed from May 1st, 1924, Joint Secretaries of the National Poultry Council. Should Mr. Brownson be re-elected as Treasurer he will, of course, occupy that position."
>
> Second: "That an honorarium of £200 per annum be paid to Mr. Edward Brown, and the same amount to Mr. A. H. Brownson for their services as secretaries, and that, in addition, each be allowed £60 per annum as a contribution to the cost of ordinary clerical assistance. Any further assistance sanctioned by the Executive Committee to be paid for in addition."

After some discussion it was agreed that the proposal that Mr. Brown and Mr. Brownson should act as Joint Secretaries at the salaries named should be accepted.

The Financial Report was submitted and adopted.

The charges for Messrs. Hamlin in connection with the successful defence of the case of Messrs. Whitman Bros., were £27 13s. 0d.

MERCHANDISE MARKS BILL.

The President said that he and Mr. Newman had been very sympathetically received by the Ministry of Agriculture. The Bill had passed its second reading, and had now to go before the committee. They would need the support of every member of the Poultry Industry to insure its passing. The Poultry Committee will bring pressure to bear on the members of the Committee. The word "indelible" had been cut out of the Bill. There would be a deputation to the Agricultural Committee on April 30th, and it would endeavour to use its influence to obtain the re-insertion of this important word.

A deputation for obtaining financial assistance with regard to co-operative societies and other bodies who wished to preserve eggs, but had not the necessary capital to enable them to carry it out, had been received by Mr. Thompson at the Ministry of Agriculture. Mr. Thompson had told them that provided eggs were in a "bonded" warehouse, banks might be induced to advance the money. That was as far as they could go at present.

RAILWAYS COMMITTEE.

Mr. Clem Watson, Chairman of the Committee, said he had not much to report. Letters making accusations which could not be substantiated had been received. No details were given, and it was useless to go to the company without details of dates and places. With regard to complaints of refusal to accept delivery of stock for Southern Ireland, it was not anticipated there would be any difficulties in the future, as it had been due to labour troubles, but they must remember that such difficulties as had arisen had not been with the railway companies, but with the Irish Parliament, more particularly with regard to the restrictions on the importation of poultry during the late outbreak of foot and mouth disease.

EGG AND POULTRY CONSUMPTION COMMITTEE.

Mr. Bostock Smith, Chairman of the Committee, reported that two meetings had been held.

The proposals of the Committee with regard to advertising were discussed, and Mr. Bostock Smith explained the scheme. He said it was not only proposed to approach the producers, but also the merchants and retailers. He exhibited many posters, for which he asked the Council to express their thanks to Mr. Brain, as one means of securing their object. He said that one firm of spice manufacturers spent £50,000 a year on advertising.

Mr. Merrett, of New Zealand, stated that he would give one hundred guineas if we were to include New Zealand and Australia in the campaign. In New Zealand they had attempted it in a modest way, and the first year they spent £120, and the next year they put the £120 in newspapers, and that had been their most successful form of advertising. They had given demonstrations by films, and had tried posters. What they wanted to do was to disabuse the world of the idea that it was only "failures" who took up poultry farming as a living, and to make people understand that there was no industry in which more brains and hard work were required.

Dr. Crowther thought that we should do nothing until we were better organised. He pointed out that the foreigner was better organised, and in a good position to take advantage of any advertising campaign which we might start. Mr. Hamnett stated it would be better not to do anything until we could get more certain information re the Marking of Imported Eggs, but spoke in appreciation of Mr. Brain's posters.

LEGAL DEFENCE FUND.

Mr. Brownson, Treasurer, stated that something must be done to augment this fund. They had already fought several cases successfully, and there were more pending which were of great importance. There was a case of a Mr. Thomas, which he had fought successfully, and that Special Commissioners had asked for a case to be stated, and it would probably have to be fought in the High Court.

Mr. Thomas was a poultry farmer, pure and simple, and not a breeder of pedigree stock, and this was a typical case which they should fight. They ought to make an endeavour to raise the fund to £1,000.

Mr. E. Brown, on behalf of Mr. Foulkes, Chairman of the National Poultry Examination Board, stated that four appointments had been made to those who had gained the diploma. The Ministry were sending out a circular letter to the County Agricultural Committees, and Education Authorities, urging the importance of the diploma.

A resolution had been passed at the last National Poultry Parliament that a manager's certificate should be granted, but the Board, after giving it serious consideration, had felt it advisable to recommend that this should be postponed for the present.

The report of the Conference on Scoring and Grading at Laying Trials was read by Mr. Edward Brown. The most important resolution from the conference was "That the National Poultry Council be invited to undertake the recommendation of the Laying Trials, and to publish lists of those which are approved by it after examination of the regulations and methods adopted by these, such recommendation to require that the entire control shall be by a public authority, institution, or society, and not by any one working for individual profit." There was a good deal of discussion on this point. Captain Pierson Webber proposed that there should be a committee of breeders appointed, who would urge their views. At present they were not represented, although they were the people who supported the Laying Trials. They had not a word to say about the management.

This proposal was ruled out of order by the President.

Mr. Harold Marshall said that a committee should be formed of three breeders, three representatives of the Laying Trials, and three representatives of the big societies. After a further discussion a committee of nine members were elected.

Mr. Rhoades, Assistant Chief of the Poultry Department of Agriculture, and Secretary of the Canadian National Poultry Council, who received a very warm welcome, explained to them the system of the Canadian Scheme of "Record of Performance." In our next issue we hope to report more fully on Mr. Rhoades' speech.

The President moved the following resolution, which was seconded by Mr. A. T. Walker :—"That the National Poultry Council commend to the Ministry of Agriculture and Fisheries the adoption of a scheme under official control for Records of Performance in Egg Production on lines similar to that so successfully carried out by the Canadian Department of Agriculture, and to that of the Milk Recording Scheme at present in operation in this country."

Mr. Stanley Street-Porter said that there was really some necessity of the adoption of some scheme for the protection of both of the breeder and the buyer, and, to his mind, the Canadian Scheme was the best for the purpose at the moment. He thought it would lead to a great improvement in their stock, and would help them very much in their export trade. He spoke of the success which had attended the Institution of the Scheme for Milk Recording. He formally moved the Resolution, which was seconded by Mr. A. T. Walker.

Mr. Marcus Slade thought it could do nothing to protect the public. It did worse; it put a weapon in the hand of the unscrupulous breeder, inasmuch as he could have one or two pens recorded and sell eggs from other birds. There was nothing to prevent his doing that. The only system which would protect the buyer from the unscrupulous breeders was a system of book-keeping.

Professor Millburn said he was in agreement with Mr. Slade.

Mr. Leslie Williams said that, although he recognised the value of the scheme, he feared the difficulties in the way were insurmountable. In the first place, the Ministry of Agriculture had no experts who would carry out the work as outlined by Mr. Rhoades, and it would take some time to get these properly trained. Secondly, there was the question of expense.

Mr. Tom Newman said he thought they were all dwelling too much on the question of eliminating the rogue. That would never be entirely possible. In spite of what Mr. Slade said, he did not agree that any system of book-keeping would prevent a man from being a rogue if he wished to be so. The great point in the scheme was that of effecting breed improvement, and it would in time, to some extent, effect the purpose of eliminating the rogue as no other means would do, by keeping before the public breeders of repute to whom they could send for reliable stock. What they should keep always before them was the necessity of some kind of Inspection and Registration in order to effect breed improvement, which was so desirable.

The President said he did not agree with Mr. Williams or Mr. Slade. He did not expect them to accept the scheme in its entirety; there would have to be modifications.

After a long discussion the resolution was agreed to.

COMMITTEE OF CONSTITUTION.

Mr. A. H. Brown, President, proposed that a Special Sub-Committee consisting of seven members with the officers, ex-officio, be appointed to consider :—

(a) The constitution of the National Poultry Council, and the basis of contributions of affiliated societies and etc.

(b) The advisability of giving further representations upon the National Poultry Council to societies, co-operators and breeders, to patrons, and, if so, the basis of such representations.

(c) Other alterations to the constitution which might add to the unity of the Poultry Industry and strengthen the National Poultry Council, and others sent by affiliated societies.

(d) The Report and recommendations of the Committee, if any, to be issued as provided in Section XVII. of the Constitution for consideration at the National Poultry Parliament, 1924.

A long discussion followed. The following Committee was elected to consider the recommendations and report to the Council :—Ex-officio : Stanley Street-Porter, President; Tom Newman, Vice-President; A. H. Brownson, Treasurer; Major Tom Potter, C. Longbottom, A. T. Walker, L. Williams, Capt. Pierson Webber, J. G. Kitson, Mr. A. H. Brown, and the Secretary.

The Secretary reported that arrangements for the National Poultry Parliament to be held at Salisbury in July were well forward. He had attended a meeting at Salisbury on April 1st, at which the Mayor had presided. A local committee had been formed, of which Mrs. Knight had been elected Secretary. It was proposed to hold a public meeting during the afternoon or evening of the first day, and he was pleased to be able to announce that Dr. Raymond Pearl had promised to address the meeting.

It would be necessary to book early at the hotels.

THE SECOND WORLD'S POULTRY CONGRESS AND EXHIBITION.

Mr. Edward Brown proposed that the Council should have official representatives at the World's Poultry Congress. He suggested that the President and Vice-President should act. This was agreed to.

This concluded the business.

Mr. Tom Newman then proposed the following resolution :—" That the warmest thanks be hereby tendered to the Governors of Harper-Adams' Agricultural College for permitting the National Poultry Council to hold its meeting at the College, which was its birthplace, and to Principal Crowther and his staff for their kind attention and hospitality to the Council during the week. It is hoped that the National Poultry Institute will ere long be in active operation, and that at such time the Council may have the opportunity of seeing this great project in which it is deeply interested fully accomplished."

Mr. Newman said it gave him the greatest pleasure to move the resolution. It had been said during the morning that the Harper-Adams' College was the Home of the Council, and he thought they would agree that a very successful effort was made by the principal and his staff to make them feel at home there. They all felt pleased at the kindly welcome extended to them.

Mr. W. Hamnet seconded the resolution, and said that he agreed with Mr. Newman that they all felt very much at home there, so much so that he feared the principal sometimes thought them rather a handful. He spoke of the great assistance given to the Council and to the industry generally by the governors and the members of the Harper-Adams' College.

Principal Crowther, in reply, said that it really had given them great pleasure to welcome the Council to the College, and he extended the invitation to go to them, either collectively or even individually, whenever they were able to do so.

He caused some amusement by referring to Mr. Hamnett's remark as to their being "rather a handful." Certainly, some sections were rather a handful, but perhaps it would be better if he did not name that particular section.

VENTILATION—MR. HOTBLACK'S ARTICLE.

We very much regret there was a serious omission from Mr. Hotblack's article on Ventilation last week. In next week's issue we hope to publish a further article on the subject by Mr. Hotblack, in which the omission will be fully explained. Unfortunately it was received too late for this week's issue.

OUR FRONT COVER.

Miss Harrison-Bell may be justly proud of the feat of her five Khaki-Campbell ducks, which in 24 weeks have laid 375 **first grade** eggs. Everyone will agree with her as to the importance of the first grade egg. When we were at Mr. Toovey's recently he pointed out how the duck was beginning to deteriorate in this respect, and showed us some eggs which were decidedly on the small side. Also he spoke of the lowered vitality of the duck which he attributed to breeding for excessive egg production.

Miss Bell's ducks have averaged nearly five eggs apiece during the 24 weeks. Let us hope that duckers will not shut their eyes to the lessons to be learnt from poultry breeders.

For the latter there is some excuse; they had to learn their lesson by experience, the ducker can learn by example where the poultry breeder has gone wrong. Miss Bell has evidently taken the lesson to heart.

What our Readers and Advertisers think of "Eggs."

De Grey House, Garforth, Leeds.

"I am glad to say my trial advertisement in "Eggs" was highly satisfactory, as I sold the whole of the twenty pullets immediately. I am now enclosing an advertisement of Cockerels, which I hope will be as successful."

ALFRED HIRST.

"SOLD FIVE TIMES OVER."

Cot Poultry Farm, Hassocks Road,
Hurstpierpoint, Sussex.

"I shall be glad if you will withdraw my advertisement from the next edition of "EGGS" as I have sold the articles five times over."

R. S. LEESON.

Market Report.

MINISTRY OF AGRICULTURE RETURNS,
WEEK ENDING, FRIDAY, 11th APRIL, 1924.

GRAIN AND FEEDING STUFFS.—The small quantities of English wheat now being marketed are not in brisk demand, but there is rather more enquiry than recently and prices have a hardening tendency. Barley is in quiet request at late rates, and white oats meet a dull trade, but black oats are scarce and command fully recent prices.

Imported grain meets a quiet and somewhat irregular trade, but on the whole wheat is inclined to advance and feeding barley and oats to decline in value. Maize shows little alteration.

Milling offals meet a rather more active enquiry and prices are firm for middlings; bran, on the average, shows little alteration. Meals are inclined to fall further in value; barley meal especially is obtainable at lower figures, averaging £10 5s. per ton as against £10 10s. last week. Linseed cakes have again been reduced, 9 per cent. cake now averaging £12 5s. per ton, as compared with about £14 at the end of February, but a rather more active enquiry is apparent at the prices now current. Cotton cakes maintain their value.

MILLERS' OFFALS.—Bran (British): Bristol, £8 10s.; Hull, £7 12s.; Liverpool, £8 5s.; London, £7 10s. Broad Bran: Hull, £9 2s.; London, £8 7s. Middlings: Fine (Imported): London, £9 2s.; Coarse (British): Bristol, £9 2s.; Hull, £8 10s.; Liverpool, £8; London, £8. Pollards (Imported): Bristol, £7 15s.; Hull, £6 15s.; Liverpool, £7 2s.; London, £7 5s. Rice Bran: Bristol, £8; Liverpool, £7 10s. MEAL.—Barley Meal: Bristol, £10 10s.; Hull, £10; London, £10 5s. Maize Meal: Bristol, £11 15s.; Hull, £11; Liverpool, £10 17s.; London, £11 15s. Maize Germ Meal: Bristol, £11; Hull, £10 10s.; London, £9 7s. Maize Gluten Feed: Bristol, £11; London, £9 7s.

EGGS AND DEAD POULTRY.

British eggs are in large supply and meet a good demand. First quality at 12s. 6d. per 120 show a decline of 3d. on the week, but towards the close of last week a hardening tendency was in evidence. Home-produced poultry continues to be scarce, and chickens are again dearer, 1st quality at 2s. per lb. showing a rise of fully 1d. on the week.

Week-end Prices—Eggs (per 120): British, 12s. 9d., 12s.; Irish, 12s., 11s. 6d.; Danish, 15s., 13s.; Dutch, 14s. 6d., 12s. 6d.; Belgian, 13s. 6d., 12s. 9d.; Egyptian, 8s. 3d., 8s.; Moroccan, 9s. 3d., 8s. 9d.; Italian, 13s., 11s. 6d.

Dead Poultry (per lb).: Fowls—Surrey, 2s. 6d., 2s. 4d.; Irish, 2s. 2d., 1s. 11d.; Others, 2s. 2d., 1s. 11d. Ducks, 2s. 8d., 2s. 4d. Geese, 1s. 3d., 10d.

EGGS.

Per Doz.—Ashford: First, 1s. 5d.; Second, 1s. 2½d. Birmingham: First, 1s. 2½d.; Second, 1s. 1¼d. Carlisle: First, 1s. 4d. Chelmsford: First, 1s. 4¼d.; Second, 1s. 1¾d. Denbigh: First, 1s. 0d.; Second, 11d. Derby: First, 1s. 3d. Dorchester: First, 1s. 2½d. Exeter: First, 1s. 2d. Guildford: First, 1s. 7d.; Second, 1s. 4d. Hereford: First, 1s. 0d. Hull: First, 1s. 1d. Ipswich: First, 1s. 3d.; Second, 1s. 0d. King's Lynn: First, 1s 3d.; Second, 1s. 0d. Lincoln: First, 1s. 2d. Llandilo: First, 9d. Montgomery: First, 1s. 0d. Newport (Mon.): First, 1s. 1d.; Second, 1s. 0d. Norwich: First, 1s. 3½d.; Second, 1s. 2½d. Oswestry: First, 1s. 0d. Penzance: First, 11d.; Second, 10d. Salisbury: First, 1s. 4d.; Second, 1s. 3½d. Shrewsbury: First, 1s. 2d.; Second, 1s. 0d. Skipton: First, 1s. 1d. Truro: First, 11d. York: First, 1s. 4d.; Second, 1s. 2d.

FOWLS.

Per lb.—Birmingham: First, 1s. 7d.; Second, 9½d. Derby: First, *5s. 6d.; Second, *3s. 6d. Exeter: First, 1s. 8d. Hereford: First, 1s. 6d.; Second, 1s. 4d. Ipswich: First, 1s. 10d.; Second, 1s. 6d. Lincoln: First, *5s. 6d.; Second, *3s. 6d. Llandilo: First, 2s. 3d.; Second, 2s. 0d. Newport (Mon.): First, 1s. 7d.; Second, 1s. 4d. Shrewsbury: First, 1s. 6d.; Second, 1s. 3d. Truro: First, 1s. 4d. York: First, *6s. 9d.; Second, *5s. 6d.

DUCKS.

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EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, April 23rd. 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of " Eggs " to their poultry-keeping friends.

Subscription to " EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, " Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of " Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

VACCINES, SERUMS, ETC.

We have received the following letter from a reader signing himself " A Subscriber ":—

Dear Mr. Editor,—My attention has been drawn to a letter signed "Iran" in the Editorial column of your issue dated March 25th, and your comment on the same. I have not seen your article on Chick Mortality, to which you refer, or any of the previous correspondence on the question of the use of vaccines and serums as a means of fighting disease in poultry, but it is clear to me from " Iran's " letter and your comment that you have no faith in vaccines and serums, and that you pin your faith on breed from the fittest, accompanied by ideal living conditions, as your preventative for the diseases to which fowls are susceptible.

If you will permit me, as a subscriber to " Eggs," to express an opinion with some comment on your attitude in the matter, I shall be obliged. I have had some experience with vaccines and serums on my farm, and I can say that although the vaccines have not proved entirely reliable, I am satisfied that the principle is worth further trial. The use of serums on infected birds has proved reliable in all but eye cases. These latter if treated with a reliable eye lotion respond quickly to treatment.

I am hoping this autumn to use vaccines which will produce immunity up to 95 per cent. against Roup, Diphtheritic Roup, in its various forms, and a similar form of outbreak which may be due to malnutrition or local conditions, which, of themselves, do not appear to be bad enough to produce anything but good health.

My comment on your attitude to this question is that I agree with everything that "Iran" has said; that your substitute for vaccines and serums is no use to the commercial poultry farmer, is based neither on common sense nor anything approaching a scientific principle, and that unless you can produce a better than you offer, you ought to invite and encourage a more progressive form and method of fighting disease. Until you can do this you ought to encourage and give every help your paper possibly can to the people interested in this subject. It is only in its infancy, but for an infant my opinion is it is doing good work, and should not be discouraged. You are not treating the vaccine producer fairly, and, as a subscriber to your journal, I protest. I will refer to one part of your reply to "Iran" to show that my protest is justly founded. You state that a flock of 200 Leghorns developed Avian Diphtheria twelve days after inoculation, and your reply that that was sufficient to convince you that vaccines were useless. You do not state that there never was Avian Diphtheria on that farm before; that the birds were carefully examined for minute spots in the mouth before inoculation, or that any precautions were taken for sterilizing the syringes in between each operation. You may be correct in condemning the particular vaccine which was used; it may not have been properly prepared. Had these birds been free in blood and local mouth conditions, minute and dormant, and had a reliable vaccine been used, and the necessary precautions been taken with the birds for three days after an inoculation the outbreak would not have occurred. The probability in this case is that all these birds should have had a serum or curative vaccine, and not a preventative vaccine. The fact that they appeared in perfect health is no proof that infection was not present.

There is also a probability that I may be talking through my hat, but I am certain that I can teach you something on this question, and that others can do likewise if you will give them a chance. I will go further than this, and make you an offer, viz., to keep you informed every six months of the experiments I hope to make on my farm, unless the egg market closes it down before Christmas, and help you to learn to appreciate rather than discourage a comparatively new department in the poultry industry whereby the anxieties of commercial poultry farmers may be lessened and removed.

I am sufficiently convinced that the vaccine and serum treatment, correctly prepared, is valuable and reliable to such a degree as to make you another offer. As soon as you can produce a pen of 100 White Leghorns—hens or pullets—produced on your lines of immunity from disease in the best ideal house and conditions you can produce, I will guarantee to prove to you that I can produce Avian Diphtheria in that flock from No. 1 to 100. As soon as you are satisfied that the disease is rampant, I will cure these birds, all but the eye cases, with a serum in three weeks, and the majority of the eye cases in the same time with an eye lotion.

One question I should like to ask in closing: What suggestion can you make to solve the problem I am faced with every year of curing the many hundreds of sparrows which live all round my farm, many of which are infected with symptoms of Avian Diphtheria? I can't catch them all, and I can't afford to inoculate those I catch; I kill those. How do you propose to produce immunity from disease among these infected sparrows by the methods you suggest should be applied to poultry?

A SUBSCRIBER.

The writer asserts that our substitute for vaccines and serums is " based neither on commonsense, nor anything approaching a scientific principle." We thank him for his candour, and might easily retort, but will content ourselves by respectfully suggesting that what he has said is equally applicable to his own letter, for what evidence has he to offer as to the value of either vaccines or serums? An admission that the latter are not entirely reliable, and a statement that the serum has proved reliable on infected birds in all but eye cases. A claim which has been made by those who use either iodine, caustic soda, some of the coal tar preparations, or even other remedies. Following this we have a statement that he "is *hoping* this autumn to use vaccines which will produce immunity up to 95 per cent. against Roup, Diphtheritic Roup in its various forms."

We beg to ask him for the information alone, and not for any ulterior motive, what tests were made on his farm, to *prove* that the vaccines used were even *partially* reliable. What does he actually mean by *immune?* Does he mean a period of freedom from disease? We have heard so much as to immunity from roup in its various forms by the use of vaccines from the vendors of them, that we would like to know, and our readers would like to know what steps have been taken to *prove that they have secured even partial immunity.* Can our correspondent tell us *actually what tests have been made on his own farm*, which will warrant his saying that they have proved even partially reliable? The writer then accuses us of having treated the vaccine producer unfairly, and he protests, and refers to one part of our reply to "Iran" to show that his protest is justly founded.

We cannot agree that we have treated the vaccine producer unfairly, certainly not so unfairly as our correspondent has treated us. We did not say that the failure in the particular case mentioned "was sufficient to convince us that vaccines were useless." Nothing of the kind. In every criticism which has been levelled at the attitude which we have taken on this question of vaccines and serums, we have had to complain of critics who have misquoted the written word. We stated in the paragraph referred to that two hundred birds had been inoculated against Avian Diphtheria, and that 12 days after the disease was rampant, although the birds had never shown any indications of it before. We concluded by saying: "It is not for a moment suggested that inoculation in this case was the cause of the outbreak. It is only mentioned to show that it did not prevent it—that it failed in its purpose?" Our correspondent's protest is not justly founded, on the contrary he is most unfair. How can he construe this into a reply that this was sufficient to convince us that vaccines were useless?

Again, what right has he to assume that the vaccine used was not properly prepared, or the precautions which he enumerates not taken. That is not commonsense, neither is it approaching a scientific principle. It is purely supposition. As a matter of fact, all the birds were most carefully examined, the vaccine was procured from an expert, used as per instructions, and on advice. Let us refer the writer to the letter by A. B. C., in the issue of April 9th. In this case 300 pullets were given two injections of vaccine. All the birds were examined, and no trace of the disease found. About a week later signs of disease were noticed, and they were given two more injections of vaccine, making four in all. By the end of another two weeks 250 of the flock had the disease, mostly serious cases.

Would our correspondent explain this? Here are 300 birds, a month after the first inoculation, 250 of the birds had the disease, mostly seriously, yet they had been carefully examined previous to inoculation. Is it to be supposed that all of them were suffering from the disease previous to inoculation? How long after inoculation is immunity secured?

Now we will give a further example. 20,000 doses of vaccine were bought on a large farm; some were distributed to other farms in the vicinity for the purpose of testing its value, and it is important to state here this was undertaken by men of experience, whose standing in the industry is beyond dispute. We give their opinions as we heard them from their own lips. No. 1, snapping his fingers: "It's no more use that that." No. 2: "I can't say definitely, but I am inclined to think it is no good." No. 3: "I believe it has done me more harm than good." Is our correspondent prepared to suggest again that the vaccine was improperly prepared? When it has failed, and failures are numerous, is he again going to say that the method or the system is at fault? In the cases mentioned above the vaccines were not from the same source.

To deal with the remaining part of his letter. We have never suggested that he or anyone else could not teach us anything on this or any other question. Every criticism, save one, which has been received, has been published, and that was withheld for reasons which had nothing whatever to do with the criticism itself. The columns of "Eggs" are open to our readers, and never since we have edited it have we ever refused to publish any criticism of what we have written, so that it is quite unnecessary for him to insinuate that we do not give everyone a chance.

In regard to his second offer. Again we have great reason to complain. Our correspondent before he ventures on criticism should, in fairness and courtesy to those with whom he disagrees, read carefully what they have written, and not misquote them, or misrepresent them. We have never suggested that breeding from the fittest, or any method of housing or feeding would secure immunity. What we wrote on immunity was on the question of "Natural Immunes," and arose from something which was told us by Professor Fratteur when in Belgium. We suggested, as we did some years ago, that more importance should be attached to these birds, and there was a possibility of building up a strain of birds which would be immune, so that our correspondent's offer is made under a misapprehension, and an imperfect acquaintance with the facts. He will not produce Avian Diphtheria amongst birds which have been proved naturally immune. As to his offer to cure diseased birds within three weeks, well, that has been done before, without the use of serums.

The article on "Chick Mortality" dealt with the question of fighting disease. The question of immunity was never raised. If the writer had read carefully what was written, he would never have asked the question about the sparrows, as nothing was said about immunity.

There have been three letters criticising the attitude we have taken up, "Iran" wrote. "You, I believe, would wish to take the short cut to immunity, and preach breed only from the fittest," and, again, "Constitutional vigour does not spell immunity." In not one word that we have written was any suggestion of the kind made. "Prevention" asked such a childish question as "Is it humane to let the little mites die off without making an effort to save them?" and again, "What is the objection to adding to chick's drinking water something which, according to those qualified to say, will prevent infection, and not harm the bird?" That is, of course, sheer nonsense, and how anything which was written could be so interpreted passes our comprehension. Then we have "A Subscriber" who begins by saying that what we have written is "based neither on commonsense, nor anything approaching scientific principle," who admits he has never read the original article, who misrepresents what we did say in the article which he has read, and also misquotes what was written. He has offered to teach use something on this question, *if he is given a chance*. That offer is accepted without reservation or equivocation. What we want, and our readers want, is *reliable evidence on this question of immunity*. Will "Subscriber" say to what test he has submitted his birds to prove they are immune? how long his experience with the use of vaccines has been? Whether he is aware or not that diphtheritic roup can be cured in three weeks by other means than by serums, and whether he is aware that there have been several cases in which it has failed to effect a cure, just as other remedies have failed.

Modern Poultry Feeding.

By TOM NEWMAN.

CHICKEN-REARING EXPERIMENTS AT WELLINGHAM POULTRY FARM, LEWES.

At the end of the fifth week the chicks in this experiment showed the following weights:—

Pen A.—Average weight, 9.68 ozs.; average increase, 2.56 ozs.

Pen B.—Average weight, 8.84 ozs.; average increase, 2.04 ozs.

Pen C.—Average weight, 8.72 ozs.; average increase, 1.32 ozs.

This takes us to April 4th. As my readers are too well aware, we have suffered badly from the bitter north-east winds, and, although development is quite satisfactory, it would certainly have been better had we experienced more genial weather. As poussins, these chicks would be decidedly profitable. We have accomplished something to reach these weights with such economical feeds at five weeks old.

PULLET EXPERIMENTS.

We have to record the death of one pullet in Pen B, and one in Pen C. In the former case the liver was abnormally large, in the latter the cause of death was a broken egg in the oviduct. In spite of this handicap Pen C has still further increased its lead, and as the pullet died on the 2nd of the month, without having contributed an egg, the remaining nine average twenty-four eggs each, and if we take this pullet's eggs (74) from the total, the remaining nine have laid 918 eggs, or an average of 102 eggs each to the 20th of March. This must be regarded as very satisfactory, and demonstrates that a high percentage of fish meal is not necessary to heavy egg production. This concludes the sixth period of four weeks. The mash formulas are given in our issue of March 19th. There was a case of crop-binding in both pens A. and D, and it is a little singular that both pullets should have laid ten eggs each. So far, then, a ration with 3 per cent. of fish meal supplemented by a suitable vegetable protein (the soya bean meal) has resulted in the production of 15.4 more eggs per bird than the pen with 12 per cent. fish meal; and, although I must again emphasise that we must not attach too much importance to this additional number of eggs, we may certainly say that we can produce as many eggs in a properly constituted ration without a high percentage of animal protein as we can with it. The control Pen D did far better this month; they were undoubtedly handicapped during the early period by a deficiency of fats in the ration, but directly the maize feed was increased a distinct improvement was seen.

"A." (Blue Ring).

Ring	Eggs.		Amount Consumed.
No.	Mar.	To Date.	
121	22	75	Mash: 45lbs. Grain: 38¾lbs. Total: 83¾lbs.
228	10 Cr. Bd.	53	
235	24	80	
249	17	123	
250	21	99	
337	21	87	
384	22	100	
388	N.M. 1	30	
401	21	114	
405	N.M. 11	78	
Tot.	170	839	

Total Cost: 8s. 11.2096d.

"B." (Red Ring).

Ring	Eggs.		Amount Consumed.
No.	Mar.	To Date.	
80	18	61	Mash: 47lbs. Grain: 36¾lbs. Total: 83¾lbs.
206	—	34	
207	1 Died.	43	
210	18	69	
217	19	96	
271	24	120	
292	18	92	
303	26	122	
508	20	76	
524	24	112	
Tot.	168	825	

Total Cost: 8s. 9.2409d.

" C." (Green Ring).

Ring No.	Eggs. Mar.	Eggs. To Date.	Amount Consumed.
213	24	116	
229	26	114	
256	23	97	
257	21	108	
265	25	106	Mash: 52lbs.
273	23	108	
410	Died.	74	Grain: 36¾lbs.
411	26	98	
413	26	76	Total: 88¾lbs.
525	22	96	
Tot.	216	993	

Total Cost: 9s. 1.8466d.

" D." (White Ring).

Ring No.	Eggs. Mar.	Eggs. To Date.	Amount Consumed.
79	24	109	
138	25	74	
234	20	79	
261	24	113	
285	10 Cr. Bd.	27	Mash: 57lbs.
333	22	105	Grain: 38¾lbs.
387	24	111	
389	23	98	Total: 95¾lbs.
392	21	91	
394	21	48	
Tot.	214	855	

Total Cost: 11s. 8.1960d.

I received the following letter from Mr. E. Lloyd Bigland :—

" Dear Mr. Newman,—During the last few weeks there have been a number of letters in ' Eggs ' on different chicken troubles, and the chief of these I think has been leg weakness, which is said to be, to a large extent, caused by wooden floors.

I am not claiming to have a cure for the above, or yet a certain means of preventing it, but will give my methods of rearing for the last four years, so as readers of ' Eggs ' will see how I have got over this complaint.

In March, 1920, I reared 50 chickens in a " Miller " brooder, on free range, and, as I then believed the best thing to do was to get the chickens outside as soon as it was possible, these chickens were fed on kibbled wheat as grain and a wet mash of biscuit meal. By the time they were three weeks old I had lost half of them with B.W.D., that being the only trouble that year.

By next spring I had heard such a lot about leg weakness being caused by wooden floors that I used an earth one in my brooder, and, strange to say, I had very bad leg weakness and no B.W.D., so I felt that there was not much in the wooden floor bringing on leg weakness.

Last year I tried another plan which was quite a success in so far as I tried it. It was this: The chickens were kept in the brooder house on cut straw litter till they were three weeks old and fed on dry mash. I reared 84 chickens in one batch this way, and they have not had any complaint, and are now laying hard. As that was so successful this year I am rearing them intensively altogether and feeding them on dry mash with 2 per cent. yeast extract and 1 per cent. cod liver oil; they are having no green food, as I have proved that the yeast extract is as good, if not better. I have now 100 chickens ten weeks old which have been reared on this plan; they are all doing well.

I think that a lot of the chicken troubles we have to contend with could be overcome by right feeding, and it is up to us to find out what this is. I will give you the way my chicks are fed. They have no food till they are a good 48 hours old, then they get a dry mash of my own making with 2 per cent. yeast extract and 1 per cent. cod liver oil; for a scratch feed, I feed kibbled wheat, no green food is fed.

It is of interest to note that I have a pen of 40 White Leghorns which get yeast extract and cod liver oil, but no green food as they are kept intensively. These birds have laid over 1,700 eggs this year. Hoping you may find room for this letter in ' Eggs,' as I know how valuable space is."

Yours truly,

E. L. BIGLAND.

Mr. Bigland must forgive me if I say that his results do not prove anything like what he claims for them. In 1920 his feeding was certainly not good, and was conducive to diarrhoea—of course I do not mean B.W.D. Leg weakness caused by wooden floors is more in the nature of cramp than what we generally describe as leg weakness, and if his feeding in 1921 was on the lines of 1920 it is not at all surprising that on such a diet he had an outbreak in spite of the floor of earth. How has he proved that yeast extract is as good, or better, than green food? We know the value of yeast extract and of dried yeast and cod liver oil, but we have too much evidence that the addition of these two foods to any ration will not prevent leg weakness. There was a time when I thought that the additions of the A and B Vitamin in the form of yeast and cod liver oil were going to solve this problem of leg weakness for us, but those hopes have been dissipated, and, as I said last week, we must not look to the rations for the solution, for experience tells us that very little of the trouble is due to the feeding. We reared chicks to five months old in the Wellingham experiments in 1922, and these had no green food whatever, but they had a high percentage of buttermilk, or milk products, as well as cod liver oil and yeast extract.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

FOOD COMMITTEE REPORT.

IMPORTANT.

Members, who were present at the General Meeting, will remember with what enthusiasm Major Few's resolution in reference to the purchase of foodstuffs for members by the Council, was carried. Few, perhaps, realised what difficulties there were in the way. The committee elected to enquire into the possibilities of such a scheme, and the means of putting it into effect, have had a most difficult task, but at last, after much patient work, they have evolved a scheme which they think will prove successful, and be of great benefit to our members, *provided the Council has their whole-hearted co-operation.* The details were published in the issue of April 9th, but the matter is so important that they will bear repetition.

The formation of a subsidiary company is necessary for the purposes of registration; as was mentioned, it will not follow that those who reap the advantages will takes shares in the company; it is formed in order to comply with the Registrations Act.

There is no possibility of the scheme being successful unless branches are formed so that the foodstuffs can be sent in bulk. In small lots the transport charges kill any advantage which the member may hope to derive, *but it should be understood that the minimum consignment (two tons) can be made up of various foods.*

How many of those who so enthusiastically supported Major Few's resolution will now come forward and take up the work of calling members in their district together, in order that branches may be formed and the scheme put into operation. That is what the Council want to know before it can proceed further.

The scheme is a practical one, and will prove of the greatest benefit to those who participate in it. But the one thing necessary for its success is the co-operation of our members.

THE SCHEME.

(1) Proposed to Register a Society for the provision of feeding stuffs, provided there is sufficient support from members of the S.P.B.A., who are willing to form branches in order that foods could be bought in bulk on most reasonable terms and distributed economically.

(2) It will be necessary for members in the various districts to form a committee for the management of the branch and to find a responsible person to act as Secretary, to whom orders would be sent, and he would forward them to the Secretary of the Company.

(3) The minimum quantity which could be supplied to any branch would be two tons.

(4) The branch would have to arrange the distribution to its members.

(5) The two-ton consignment may be made up of various foods.

(6) A weekly price list will be sent to each branch.

The Secretary was instructed to give publication to these proposals in "Eggs," and to request that any members who are willing to take up the work of forming branches should at once communicate with him so that the Council might consider whether they will be justified in carrying on with the proposals.

TO READERS.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (**NOT from Capt. Leeney**).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

"Standford" (Bordon). It take it that your question is based on the supposition that males when removed from the hens for a long period become sterile, and that is why you ask whether it is essential for the cocks to be running with the hens until next season. I always prefer to do so, and have never found any harm result from this, although the old advice was to take them away, and rest them. There is no doubt that in some cases, when they are taken away, the males become sterile. One hundred hens for the four would not be too much, as it is not your purpose to keep them there for fertile eggs.

"Perplexed" (South Devon). You say that since last October you have been feeding your laying flock on the formula I prescribed, and up to now have found it has given the desired result, namely, plenty of eggs, but now you have an idea it is not quite suitable for this period of the year, as the quantity of eggs are less, and you are getting a large number of shell-less eggs. The mash should not be altered according to the season, but regulated by the bodily condition of the birds. It is very funny that eggs are less now when they should be more plentiful, especially as the birds have been producing through the winter, but they may be only taking a temporary rest. I am not inclined to suggest any alteration in the mash; it should be perfectly satisfactory. It would help me if you were to say what percentage of shell-less eggs you were getting. One cannot suggest any alteration in the mash, because two or three birds in a flock are laying shell-less eggs. In a large flock there must be always a small percentage of individuals which will find a mash a little too stimulating for them in the flush season, and these are generally the best layers. The only suggestion that I would make is that you omit the clover meal now, as there should be plenty of fresh green food, and replace it with another part middlings.

F. H. (Westerhanger). I have examined the nine eggs you sent. Of these two were addled, and two were clear. Only three of the chicks had reached the 16th day. My opinion is, in spite of what you say, that the eggs were at fault, and the real trouble arises from weak fertilisation. This is often the case when we have had cold east winds prevailing for some time. We are quite certain that the temperature was not at fault, neither was it a question of moisture. The incubator was not to blame in any way. You may be perfectly satisfied that it was the eggs which were at fault.

G. H. R. (Grantham). You can obtain the formulas by sending a P.O. for 6½d. to this office, and this will include full details of the Wellingham experiments to which you refer.

E. M. W. (Essex). (1) As your hens have free range over several acres, three meals are not necessary. It will make no difference whether you give them the mash night or morning. (2) Bran is no good for fattening Aylesbury ducks, or anything else; maize is not suitable, because it has a tendency to put on internal fat, and you can hardly expect to fatten successfully on middlings with occasionally boiled rice. The best formula would be: Middlings, Sussex ground oats and barley meal, two parts each; meat meal, half part. Cooked potatoes can be substituted for the barley meal, and boiled rice by way of change. If you can mix the mash with sour skim milk this will be a great help; in that event omit the meat meal. (3) You gave the hen too many eggs to cover, and this explains the weakly chicks. It is quite possible to chill a chick in the shell, and they often die of pneumonia afterwards. Maize is always recommended, but not for fattening.

R. S. W. (Wandsworth). Sorry, but I should only mislead you if I were to express an opinion. Far better send chicks to Capt. Leeney for post-mortem. One cannot rely on external symptoms to correctly make a diagnosis.

F. J. (Buxton). The dry mash hopper should be open all day for chicks a month old. (2) You need not cool the twelve eggs which you have in the 70 egg incubator. They will be none the better for it. (3) Give the last feed of grain as late as possible, the other feeds are only given to promote exercise. (4) A fowl lays from the perch at night, because it wants to lay, and could not find the nest in the dark if it wished to. Heavy producers often do this. (5) Give the broody hen which you do not require for sitting one good feed of oats a day. (6) A fowl that moults normally does not need any special attention, except that she should be fed well, shaded from the direct heat of the sun, and five per cent. linseed meal added to the mash. (7) It is not necessary to feed different grains with different mashes. The best standard grain mixture is: Two parts kibbled maize, one wheat, and one good oats.

D. E. (Bradford). Every egg contained a fully-developed chick. The cause of the failure was lack of ventilation in the incubator. It is not a question of overdoing the moisture, as of a stagnant atmosphere. Provided you have a good circulation of air there is very little likelihood of your overdoing the moisture. (2) Yes, you could save a cockerel from hen 38 to mate to the remaining hens in the pen next season; her record justifies your doing so. (3) Its a big price to pay for the bird, and under the circumstances I should want to know more than the mere record of the dam; what of size and shape of egg, and texture of shell. These are quite as important as a 290 record.

G. R. (Rugeley). You seem to be running the incubator correctly, and I am afraid I cannot help you, as the fact that you have a large number of dead-in-shell may arise from many causes. It would have been easier to advise you had you sent some eggs for examination. Try putting the moisture in the tray on the 10th day, in future, as you are running the machine in a damp cellar, and give a little more ventilation during the last few days of incubation. It is impossible to be certain, but I am inclined to think that you would have better results if your incubator was better ventilated.

F. W. W. (Canterbury). No experiments have been made as to the result of excess of moisture in the incubator. In my opinion there cannot be an excess of moisture except where the ventilation of the machines is at fault. Given a free circulation of air in the egg drawer, you will never overdo the moisture. Frequently we get eggs in which the chick completely fills the shell. In such cases there is always a large percentage of dead-in-shell, as this is due to the stagnant atmosphere in the incubator, preventing their evaporation, so that the chick is suffocated in the shell by carbon dioxide exhaled from its own body, which cannot escape.

"Beginner" (Pinner). The sample of bran you send is not at all a good one. You must get something better if you are to get the best results. Broad bran at 13s. cwt. is rather better, but it has only been passed through the rollers twice and flattened out. It is not real broad bran, and the price is very high. The middlings are a fairly good sample, but they contain a percentage of ground-over bran. With the formula I gave you, the best grain feed would be: Two parts kibbled maize, and one each good white oats and wheat.

POST-MORTEMS.

F. H. H. The chick had infectious pneumonia.

X. Y. Z. The chicks were suffering from pneumonia of an infectious type.

Miss M. Y. C. Pneumonia was the cause in both cases.

H. LEENEY.

PRESTON AND DISTRICT UTILITY POULTRY SOCIETY.

Seventh Annual Six Months' Laying Competition, held at Woodland Grange, Penwortham, under the management of Mr. J. Rainford. A more detailed report will be issued shortly.

FINAL REPORT.

FEBRUARY 28th to MARCH 26th.

SECTION 1.—WHITE WYANDOTTES.

Pos.	Name of Owner.	Total to date.	Total points to date.
1.	H. Pinder	407	4060
2.	J. T. Finn	399	3986
3.	J. Hodgson	358	3524
4.	J. R. Dawson	360	3376
5.	R. Mills	358	3334
6.	W. Sharples	341	3304

SECTION 2.—ANY OTHER VARIETY, HEAVY.

Pos.	Name of Owner and Breeder.	Total to date.	Total points to date.
1.	J. C. Barnes (R.I.R.)	387	3776
2.	J. Moon (R.I.R.)	396	3472
3.	J. Pethean (B.O.)	351	3238
4.	C. C. Humber (R.I.R.)	316	3104
5.	Douglas Ann (L.S.)	268	2424
6.	N. Swarbrick (R.I.R.)	239	2314

SECTION 3.—WHITE LEGHORNS.

Pos.	Name of Owner.	Total to date.	Total points to date.
1.	J. Moon	384	3566
2.	J. Pethean	373	3316
3.	W. Braithwaite	309	3012
4.	G. L. Shields	291	2838
5.	R. Mills	288	2750
6.	R. Cornall	266	2644

E. COLLIER, Hon. Secretary.

HARPER-ADAMS' AGRICULTURAL COLLEGE, NEWPORT, SALOP.

POULTRY LAYING TRIALS, 1923-1924.

REPORT FOR THE FIFTH PERIOD.

The fifth period of the trials ended on March 19th. The weather has been unseasonably cold, with a succession of frosts, but in spite of this the health of the birds has been good, and an increased production has been recorded by all sections, the average for the Utility Section being 104 eggs per pen of six birds.

The following is a summary of the leading pens in each section:—

SUMMARY OF THE LEADING PENS.

SECTION 1.—WHITE LEGHORNS.

Pos.	Name and Address of Owner.	Eggs.
1.	H. Smith, Ivy Hall, near Sheffield	548
2.	J. L. Brown, near Bristol	519
3.	Major W. Hayland Wilson, Longparish, Hants	521
4.	Capt. J. M. Thompson, Shrewsbury	496
5.	Miss R. D. Argles, Alton, Hants	502

SECTION 2.—WHITE WYANDOTTES.

Pos.	Name and Address of Owner.	Eggs.
1.	Mrs. Alec Wilson, Garth, Breconshire	545
2.	J. and W. Purdie, Lanark	542
3.	F. H. Collins, Bewdley, Worcs.	521
4.	H. D. Barley, near King's Norton, Birmingham	523
5.	The Misses D. and H. Keech, Market Harboro'	517

SECTION 3.—RHODE ISLAND REDS.

Pos.	Name and Address of Owner.	Eggs.
1.	F. and A. H. Sanders, Lutterworth, near Rugby	536
2.	G. W. Reeves, Whitchurch, Salop	490
3.	Mrs. H. E. Powell, Dunchurch, near Rugby	454
4.	R. Midwood, Rugby	468
5.	Dr. J. H. Crowley, Chertsey, Surrey	457

SECTION 4.—SUSSEX.

Pos.	Name and Address of Owner.	Eggs.
1.	Col. A. Dugdale, C.M.G., D.S.O., Morton-in-Marsh	604
2.	Mrs. Alistair Robertson, Storrington, Sussex	561
3.	B. Glendinning, Aspley Guise, Beds.	509
4.	E. Watkins, Cross-in-Hand, Sussex	480
5.	W. H. Golden, Eaglesfield, Leire, Rugby	457

SECTION 5.—ROCKS.

Pos.	Name and Address of Owner.	Eggs.
1.	F. R. Welch, Bewdley, Worcs.	539
2.	Capt. A. A. Plimpton, Beverley, East Yorks	541
3.	L. A. W. Wright, Loxley, Warwick	485
4.	D. J. Oook, New Milton, Hants	464
5.	R. E. Gifford, M.A., Chard, Somerset	454

SECTION 6.—BARNEVELDERS.

Pos.	Name and Address of Owner.	Eggs.
1.	W. R. Partridge, Woodmancote, Cirencester	378
2.	Miss C. E. Roads, Bletchley, Bucks	360
3.	The Velderbresse P.F., Barnoldswick, W. Yorks	330
4.	Capt. E. D. Brodie, The Haven, Horsham	325
5.	Mrs. K. Manwaring, Horsmonden, Kent	331

SECTION 7.—BLACK LEGHORNS.

Pos.	Name and Address of Owner.	Eggs.
1.	Frank Snowden, Keighley, Yorks	503
2.	G. D. Metcalfe, Lechlade, Glos.	441
3.	J. H. Hodkinson, Holywell, near St. Ives	427
4.	The Misses Allday and Rawson, Peterborough	425
5.	Birmingham Industrial Co-Operative Society, Ltd.	420

SECTION 8.—LA BRESSE.

Pos.	Name and Address of Owner.	Eggs.
1.	H. Durrant, Hurstpierpoint, Sussex	455
2.	Mrs. Hines, Twyford, Winchester	457
3.	R. Charles Hall, Coulsdon, Surrey	399
4.	Purley Poultry Farm, Ltd., Purley, Surrey	386
5.	H. R. Hunter, Twyford, near Winchester	372

SECTION 9.—ANCONAS.

Pos.	Name and Address of Owner.	Eggs.
1.	W. Hamnett, Blackpool	423
2.	F. E. Derham, Hilton, Derbyshire	353
3.	G. B. Metcalfe, Lechlade	317
4.	Stanley Street-Porter, Coveney, Cambs.	315
5.	C. Lawson, Histon, Cambridge	313

SECTION 10.—COLUMBIAN WYANDOTTES.

Pos.	Name and Address of Owner.	Eggs.
1.	S. J. Shepherd, Bridgnorth, Salop	480
2.	L. H. Wace, Solway Ash, Bridport	395
3.	L. H. Wace, Solway Ash, Bridport	411
4.	Miss Ivie King, Tytherington, Glos.	370
5.	Lady Rachel Egerton, Catsfield, Sussex	351

SECTION 11.—ANY OTHER VARIETY.

Pos.	Name and Address of Owner.	Eggs.
1.	H. D. Howe (B.M.), Leicester	455
2.	Longworth Bros. (B.O.), Rawtenstall	397
3.	Ryhall Hill P.F. (B.B.), Stamford, Lincs.	397
4.	Stanley Street-Porter (B.L.), Isle of Ely, Cambs.	367
5.	Mrs. N. E. Stubbs (R.I.W.), Disley, Cheshire	363

EXHIBITION SECTION.

Pos.	Name and Address of Owner.	Eggs.
1.	A. Howard (L.S.), Maidenhead	545
2.	W. Hammett (B.R.), Marton, Blackpool	534
3.	Ouse Manor Farms (G.B.R.), Sharnbrook, Beds.	506
4.	Ouse Manor Farms (R.I.R.), Sharnbrook, Beds.	498
5.	Mr. and Miss Marsh (R.I.R.), Llandegfan	457

SINGLE PEN TEST.

SECTION 1.—WHITE LEGHORNS.

Pos.	Name and Address of Owner.	Eggs.
1.	Miss H. Baylis, Stratford-on-Avon	107
2.	Stanley Street-Porter, Coveney, Cambs.	105
3.	Allen Bros., Harrogate	105
4.	H. Smith, Low Shiregreen, near Sheffield	96
5.	R. A. and A. H. Johnson, Chalford, Glos.	96

SECTION 2.—WHITE WYANDOTTES.

Pos.	Name and Address of Owner.	Eggs.
1.	C. W. Shepherd, Malpas, Cheshire	109
2.	E. Clough, Uplyne, near Lyme-Regis	112
3.	B. Threlfall, Churchtown, Southport	104
4.	Frank Snowden, Keighley, Yorks.	107
5.	E. Watson, Earby, near Colne	104

SECTION 3.—ANY OTHER LIGHT BREED.

Pos.	Name and Address of Owner.	Eggs.
1.	C. W. Shepherd (B.L.), Malpas, Cheshire	98
2.	B. Robinson (B.L.), Spilsby	88
3.	G. B. Metcalfe (B.L.), Lechlade, Glos.	85
4.	Chivers and Sons (B.L.), Histon, Cambs.	81
5.	Co-Oper. Wholesale Society (An.), Whalley, Lancs.	73

SECTION 4.—ANY OTHER HEAVY BREED.

Pos.	Name and Address of Owner.	Eggs.
1.	B. Robinson (R.I.R.), Spilsby	113
2.	Misses D. and H. Keech (L.S.), Market Harboro'	105
3.	W. N. Golden (L.S.), Leire, Rugby	100
4.	Major R. N. Woolley (R.I.R.), Barford, St. Martin	96
5.	A. White (L.S.), Malpas, Cheshire	96

NORTHERN UTILITY POULTRY SOCIETY.

LAYING COMPETITION, 1923-24.

FIFTH REPORT, FEBRUARY 21st to MARCH 19th, 1924.

The weather during this period has been more severe than any of the preceding four months, the first fourteen days bringing a succession of snowstorms, with severe frosts, culminating on the 5th of March with a fall of snow six inches deep. The remaining days continued fine, with a summer temperature (in the sun), but in the shade frost held sway, and at the end of the month snow remained in patches in most of the pens. As a consequence illness has been rife, and 12 birds have been lost with diphtheria.

The yield of eggs has been very fluctuating, although a steady rise has to be recorded, the lowest total being 389 on the 29th February against 594 on the 19th March.

TEST SCORE OF LEADING PENS.

SECTION No. 1.—WHITE LEGHORNS.

Pos.	Owner.	Test Score Value.
1.	Mrs. J. A. Watson	374
2.	White House Poultry Farm	371
3.	Fred Holden	364
4.	Wade and Law	356
5.	R. Duckworth	348
6.	Jethro Birtwistle	338
6.	Wilson Beattie	338

SECTION No. 2.—WHITE WYANDOTTES.

Pos.	Owner.	Test Score Value.
1.	Bolton and Gardner	489
2.	Herbert Sheard	399
3.	Thomas Pinder	397
4.	J. E. Helm	394
5.	E. J. Stone	387
6.	Mrs. J. M. Crookes	385

SECTION No. 3.—ANY OTHER VARIETY (NON-SITTING).

Pos.	Owner and Breeder.	Test Score Value.
1.	G. B. Metcalfe (B.L.)	355
2.	Robert A. Fawsett (B.L.)	331
3.	Allday and Rawson (B.L.)	278
4.	P. K. Berry (B.L.)	259
5.	C. W. Farmer (B.L.)	240
6.	Eustace Bowles (A.)	216

SECTION No. 4.—ANY OTHER VARIETY (SITTING).

Pos.	Owner and Breeder.	Test Score Value.
1.	Margerison's (Rishton) (B.O.)	387
2.	P. K. Berry (R.I.R.)	344
3.	J. Ashworth (R.I.R.)	339
4.	W. C. Huck (R.I.R.)	332
5.	Major T. F. Kingscote (R.I.R.)	324
6.	R. Duckworth (R.I.R.)	309

SECTION No. 5.—SMALL BREEDERS.

Pos.	Owner and Breeder.	Test Score Value.
1.	Mrs. A. Stow (W.L.)	378
2.	Ed. Chadwick (W.L.)	369
3.	T. Lindley (W.L.)	364
4.	J. L. Stanworth (W.W.)	353
5.	G. Ware (W.L.)	330
6.	Fred Tattersall (W.W.)	326

SECTION No. 6.—CHAMPIONSHIP (10 Birds).

Pos.	Owner and Breeder.	Test Score Value.
1.	G. B. Metcalfe (R.I.R.)	764
2.	G. H. Raynor (W.W.)	731
3.	Alderson Smith (R.I.R.)	726
4.	Miss K. Simpson (W.L.)	690
5.	Henry Poole (W.L.)	672
6.	Longworth Bros. (W.L.)	651

SECTION No. 7.—DUCKS.

Pos.	Owner and Breeder.	Test Score Value.
1.	Major J. C. Dugdale (K.-C.)	457
2.	Oscar C. Brown (K.-C.)	357
3.	Captain R. A. Long (K.-C.)	306
4.	Mrs. M. G. W. Malet (K.-C.)	305
5.	Henry M. Darrah (K.-C.)	304
6.	Miss M. Bagnall (K.-C.)	303

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GLAMORGAN AGRICULTURAL COMMITTEE.

COUNTY EGG LAYING TRIALS.

REPORT FOR SIXTH MONTH.

HEAVY BREEDS.

Pos.	Owner and Breed.	1st Grade.	2nd Grade.	Tl.
1.	Eaton and Poor, Pontardawe (W.W.	72	246	318
2.	J. Joshua, Tondu (W.W.)	49	248	297
3.	J. Joshua, Tondu (R.I.R.)	230	25	255
4.	Howell and Phillips, Barry (R.I.R.)	141	126	267
5.	J. H. Williams, Pontardulais (W.W.)	178	101	279
6.	T. Rees, Ystrad Mynach (W.W.)	105	159	264

LIGHT BREEDS.

Pos.	Owner and Breed.	1st Grade.	2nd Grade.	Tl.
1.	Howell and Phillips, Barry (W.L.) .	222	78	300
2.	H. Thomas, Barry (W.L.)	178	120	298
3.	C. Spiller, St. Fagans (W.L.)	88	218	306
4.	C. Spiller, St. Fagans (W.L.)	137	135	272
5.	Mrs. Jenner, Wenvoe (W.L.)	124	154	278
6.	R. J. Evans, Abertridwr (W.L.) ...	82	199	281

7th April, 1924. C. F. DUNKLEY, Manager.

"THREE PROFITS IN ONE."

A lecture delivered by John H. Dowden to the West Surrey Poultry Society, the Chairman of which is Sir Hubert Gough, G.C.M.G., K.C.B., and the Secretary, Mr. H. Rowntree, of Guildford.

I always welcome opportunities to meet my fellow poultry-keepers up and down the country, as it is only by one mind acting upon another that new ideas emerge. I must say, however, that I regret, if you don't mind my saying so, your choice of the subject of to-night's lecture.

As a result of the lecture which I delivered at the last Harper-Adams' conference I have had repeated requests from far and near to speak on this subject of fattening— nevertheless will you allow me to take this occasion in order to unhesitatingly state my firm belief as to the best and most profitable methods of attaining success on a poultry farm. In one case a man will set out to create and acquire a purely egg farm, another will aim at a pedigree farm and building a strain, a third will build up a trade in table poultry; but the ideal for the general poultry-keeper is to combine the whole of these aims and create a general-purposes poultry farm. I will fully explain as I go along the result, and trust to show that this is pre-eminently profitable. Although I mention table poultry as a branch, you will note that I do not specify any particular breed of bird. Although I have been very successful in turning my surplus cockerels of all breeds into a source of profit, I would like it to be clearly understood that this is by no means a prime part of my business but only one of my extra sources of profit.

To show the necessity of combining all branches if possible we have only to look at the present rapidly decreasing price of table eggs to recognise how advantageous it would be, to be in possession of a well-known and reputable strain from which sitting eggs could be sold at three to four times table egg price. Then again, with a fattening plant the surplus cockerels which, to the egg farmer, are generally a source of loss, can be, as I hope to explain later, turned into revenue. Then again, when eggs are scarce and employees are not so fully occupied in that branch, the fattening plant is useful to fatten off all surplus stock, or, possibly, if heavy breeds are kept, it would be in use at the time when eggs have not reached their highest price; thus at all times throughout the year the general-purposes farm would be taking advantage of each market, viz:—Eggs for sitting, table poultry and eggs for consumption. This is no new doctrine as far as I am concerned, but has been gradually evolved by my own practical knowledge gained over many years. To show you clearly what I am attempting to explain, may I instance the nurseryman's business, where arrangements are made for a rotation in his glass-house so that each month will bring a crop and does not allow of intervals without returns.

Not being a professional lecturer who has well "read up" his subject, I trust you will forgive me for quoting my own experience at Heathfield. My farm of 90 acres is so organised that each of the three branches is maintained in full efficiency so that at its proper season each brings in its quota of profits, thus making the whole round of the year profitable. I mention the size of the farm in order to emphasise the fact that circumstances will alter cases, and that a small farm cannot maintain its owner from table eggs alone. The man in a large way can usually look after himself, but the small man is the real problem, and he should be the man to profit most from the adoption of the general-purposes system on the farm.

We can now take up the subject which has been decided for this evening in order to help the small producer with an item which usually proves to be a loss. The fundamental points to emphasise in fattening are, firstly, quick and continuous growth. One of the chief reasons for the marked success of the Heathfield fatteners is that their birds are reared with that definite object in view, and are therefore kept in more or less fat condition during the whole of the chick's life. At the Heathfield Market, held on April 1st, 13 weeks old growing chicken realised up to 10s. 4d. each. As in the case of your pullets being raised for laying purposes a check in the growth during the early stages is bound to have a detrimental effect. These results are more apparent to most poultrymen in the case of laying stock; they notice if their pullets fail to develop well, but the check is none the less serious in the case of birds being raised for table purposes. Therefore feed your surplus stock liberally from the commencement with a view to clearing at the earliest possible moment. In many cases, unfortunately for the owner, these birds are given just a maintenance ration, with the result that they are on hand for several weeks longer than they need be.

I know that I shall be told that at the time of the year when this work needs attention many other more seemingly pressing jobs await the poultryman, but I would point out that with the one branch being neglected sufficient money is being lost to more than pay for another man's wages. It seems to be a positive mania on some farms to cut down labour costs, but this policy I personally consider to be a very dangerous one, and certainly against the best interests of the farm. Go war ly with your labour costs, but each additional man profitably employed results in increased income for the employer. I think I have sufficiently stressed the importance of keeping your birds in good healthy, plump condition. This cannot be so easily done if the birds are fed on some of the rearing mashes in common use to-day, or if the cockerels and pullets are allowed to run too long together. As soon as the cockerels are separated the mash should consist of Sussex ground oats, sharps, maize meal, and Dento marrow and bone meal. The formula which I use and recommend is as follows :—

Sussex ground oats	50 lbs.
Sharps	20 lbs.
White maize meal	20 lbs.
Marrow meal	10 lbs.

The last-named ingredient I find very excellent for growing stock—in fact, I now use it throughout the farm for the whole of the stock. By tests I have found results to be even better than where fish meal is used, and the former has the advantage of being several shillings cheaper per cwt. Before leaving the question of feeding I would like to emphasise the importance of quality in the foods used for fattening. Sussex ground oats is the main indispensable ingredient. This should be very finely ground and free from husk. Do not worry about the necessity of having a certain amount of fibre content in your mash, that part of the diet somehow always manages to look after itself. Unfortunately many of the oats used for grinding into meal are thin and husky. I am to-day purchasing guaranteed pure ground oats at £12 per ton delivered. The mash formula just mentioned may be fed either wet or dry, but I strongly recommend the former for our purpose in this case, and especially if mixed with milk. It can constitute the whole of the diet, but if grain is given at all it should be fed on the grass and not in the litter, as it undesirable to induce exercise.

When the birds are placed in fattening coops at about 10 to 12 weeks of age the mash must be a wet one, and is best composed of pure ground oats with a proportion of pin-head oatmeal. If this can be mixed with skim milk so much the better, failing this dilute condensed milk which has been condemned for human food. Many of the Heathfield fatteners are now using dried milk with very good results. The proportion is 1 lb. of milk to two gallons of water. Two of the most important points to watch during the coop feeding period is the consistency of the food and the amount given. During the first day or two the food should be quite thin, gradually thickening as the time goes on, until at the final stages and during the cramming period it should be quite thick. A common mistake in fattening is to overfeed in the early stages ; this must be avoided, and at no time should the birds be given more than they can completely clear up in twenty minutes.

Place the coops in a sheltered position in the open, where it will be found that they will thrive far better than if enclosed in a building. The birds require no water, grit or green food when in the coops. It will be found that after about the tenth day some of the birds will lose their appetites as a result of the confinement; when this occurs they should be crammed twice daily, or in the case of small birds with small coops thrice daily is necessary for the best results, and in order to bring them to marketable condition at the earliest date.

You will all have doubtless heard of the suggested Central Co-operative Fattening and Marketing Scheme, and I believe a very able committee has been formed in order to draw up the plans for inaugurating this. Whilst keeping an open mind at the moment as to the practicability of this particular scheme, I do not doubt that until this organisation is in actual being such a district as Guildford is ideal for a co-operative fattening scheme for chicken raised within a radius of, say, twenty miles. At present I feel that such district schemes are preferable to one gigantic scheme for the whole country. If such a station were established the difficulty and expense of securing skilled labour for each individual farm would be overcome, and the owner would be spared the trouble of learning the skilled work. It would be necessary to impress upon all senders of the raw material the importance of keeping the birds in good healthy growing condition from the outset. A bird that has undergone a period of semi-starvation never makes a really good table bird. It must be clearly borne in mind that the whole object of the rearer fattener is from beginning to end the production of the very best quality and appearance when it reaches the salesman's hands.

In order to help those that are interested I now propose to turn to the practical side by giving a demonstration with various appliances which I have here, interspersing with the practical some remarks as to the proper preparation of the dead bird.

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EGG-LAYING TEST.

GLOUCESTERSHIRE REPORT FOR SIXTH MONTH.

A Further Increase in the Yield.

The following is the report on the Gloucestershire Laying Test (under the supervision of Mr. L. G. Price, County Instructor in Poultry-keeping), for the sixth month, ended March 21st :—

During the past month there has been a further increase in the egg yield, and this is considered very satisfactory in view of the adverse weather conditions which have prevailed; 5,175 pullet eggs have been collected against 4,711 the previous month, giving a total of 24,297 eggs for the six months and an average of 79.9 per bird. A second death (Section A.-H.B.) has to be recorded, otherwise the flock is in good health. As an item of interest and comparison the averages of the pen sections are given:—

Section A.—L.B.: W.L., 76.2 per bird.

Section A.—H.B.: W.W., 83.9; R.I.R., 68; B. Veld., 84.4; L.S., 76.4 per bird.

Section B.—L.B.: W.L., 72.9; B.L., 68.8 per bird.

Section B.—H.B.: W.W., 94.9; R.I.R., 64.5 per bird.

An interesting article bearing on the laying test appears in the Journal of the Ministry of Agriculture for April. The Journal (price 6d.) may be obtained direct from the Ministry or through the Secretary, Shire Hall.

SECTION A.—LIGHT BREED (Professional).

(Five birds constitute a Pen.)

Owner.	Points Awarded.
Major J. G. Dugdale	2,309
G. B. Metcalfe	2,266
Hinton P. Farm	2,145
J. L. Brown	2,089
H. T. Godber	2,025
Coaley P.F., Ltd.	2,023

All White Leghorns.

SECTION A.—HEAVY BREED (Professional).

Owner.	Breed.	Points Awarded.
P. S. Beales	W.W.	2,282
T. L. Davies	W.W.	2,219
P. M. Hinton	W.W.	2,143
H. W. Fowles	W.W.	2,119
W. R. Partridge	W.W.	2,103
G. B. Metcalfe	R.I.R.	1,912

SECTION B.—LIGHT BREED.

(Confined to owners of not more than 50 laying head.)

Owner.	Points Awarded.
Mrs. S. A. Brown	1,867
J. A. Hall	1,591
*Mrs. D. Japp (B.L.)	1,504
K. Wilson	1,432
J. D. Crewdson	1,396

All White Leghorns except position *.

SECTION B.—HEAVY BREED.

(Confined to owners of not more than 50 laying head.)

Owner.	Breed.	Points Awarded.
L. Grist	W.W.	2,119
Maisemore School	W.W.	2,081
Miss M. Lawrence	R.I.R.	1,504
C. G. Young	R.I.R.	1,275

SINGLE PEN SECTION.

SECTION 1.—WHITE LEGHORNS.

Owner.	Points Awarded.
Major J. G. Dugdale	622
Misses Ransford (12)	539
L. Grist	501
Misses Ransford (2)	491
J. E. Boyd	430
Sherborne Park P.F. (8)	430

SECTION 2.—WHITE WYANDOTTE.

Owner.	Points Awarded.
Lord Sherborne	644
W. R. Partridge (18)	596
Philip Clapham	594
W. O. Garbutt (21)	565
W. R. Partridge (23)	550
Miss H. Bayliss	545

SECTION 3.—RHODE ISLAND RED.

Owner.	Points Awarded.
F. W. Clifford	565
Miss H. Reed	516
A. Daunton (32)	484
Miss M. Lawrence	437
A. Daunton (44)	425
J. N. Horne	389

SECTION 4.—A.O.V. LIGHT BREED.

Owner and Breed.	Points Awarded.
G. B. Metcalfe (B.L.)	532
H. S. Hitch (Ancona)	465
A. Daunton (Ancona)	434
H. Lynden Lemon (B. La Bresse)	427
L. Grist (Ancona)	327
M. A. Greenway (B.L.)	314

SECTION 5.—A.O.V. HEAVY BREED.

Owner and Breed.	Points Awarded.
Major J. G. Dugdale (L.S.)	659
J. L. Brown (L.S.)	510
Mrs. E. Weinholt (Aus. Orp.)	476
Miss M. Lawrence (B-Veld.)	471
F. R. Welch (L.S.)	444
Miss H. Reed (L.S.)	391

SECTION 6.—DUCKS.

Owner and Breed.	Test Score.
Mrs. A. Japp (W.R.)	116
Major G. Dugdale (K.C.)	110
Mrs. E. Weinholt (K.C.)	94
W. R. Partridge (8) (W.R.)	94
W. R. Partridge (10) (W.R.)	88
Sherborne Park P.F. (W.R.)	82

PEN DUCK SECTION.

(Four ducks to the pen.)

Report for the Fifth Month ended 7th March, 1924.

Owner and Breed.	Test Score.
Major J. G. Dugdale (K.C.)	354
Bradley Agri. School (K.C.)	344
Sherborne Park P.F. (W.R.)	255
W. R. Partridge (W.R.)	255
G. H. H. Simmons (K.C.)	253
F. D. Walters (W.R.)	248

(Signed) R. A. & A. M. JOHNSON,

The Cotswold Poultry Farm,
Chalford.

H. S. WRIGHT, Hon. Secretary.

Shire Hall, Gloucester.

Correspondence.

THE U.D.C. AND DUCK BREEDERS.

To the Editor of "Eggs."

Dear Sir,—The U.D.C. have always warned its members against spoiling the laying duck by inbreeding and haphazard mating up of the breeders, realising if the present high standard which the pedigree egg duck now holds is to be retained, great care and forethought is necessary. As an original member of the U.D.C., I can safely say that we have always followed this policy, knowing full well that the inexperienced breeder can do untold harm to such a marvellously evenly balanced creature as is the "laying duck" to-day.

Surely it shows much wisdom on the part of the U.D.C. to call a halt before the harm is done rather than afterwards, which is usually the case in these matters.

To-day the Khaki-Campbell and the Runner Duck give a very high flock average, and the danger is that the craze for eggs will dominate the duck-keeper to the exclusion of all else. Texture of shell, hatchability of eggs, and rearability of the ducklings, which are such vital points, will be lost sight of in the mad rush for large numbers of eggs, and then the laying duck will be as worthless as some breeds of fowls, instead of being the most valuable and paying bird that it is possible to keep.

The club has always been awake to these points, and have done more to bring the duck to its present high standard than anything else, and is doing its very utmost to protect the duck from the inexperienced breeder.

Yours faithfully,
MISS HARRISON BELL.

INCUBATION.

To the Editor of "Eggs."

Dear Mr. Newman,—Knowing how very interested you are in incubation, I take this opportunity of detailing a little experience which has recently befallen me, in the hope that perhaps it might benefit some other poultry-keeper, who may want to know what to do under similar circumstances.

On March 31st I set 50 eggs in a well-known make of hot-air incubator. On April 5th (sixth day of incubation) the incubator lamp went out, and was out, I have proved, for from six-eight hours before it was discovered, and the temperature was similar to the outside temperature. The eggs were stone cold to the touch, so was the machine, and I was on the point of throwing the eggs away, but on second thoughts decided to relight the lamp, and see what happened. The incubator is run in a cold, damp cellar, and it took three hours for 103 degrees to be registered on the thermometer.

To-day, the 13th day of incubation, I have examined these eggs, and find *all* the embryo living and progressing extremely well—*apparently quite normally*—and on breaking open three of the least-developed eggs was pleased to discover all three contained chicks very much alive and kicking.

I don't offer any explanation, but would point out that every egg put in the machine was fertile, and were from six-year-old White Leghorn hens, mated with a 12 months' old cockerel, and the eggs were from one to six days old when put in the incubator.

It is my privilege, as you know, sometimes to be able to offer friendly assistance to those engaged in the poultry industry, and I have frequently been asked this question, but never before have I actually had such an experience myself. Therefore, I am perfectly sure this will help some other person who may, at some time, be in doubt.

When the hatch comes off I shall be pleased to give particulars of dead-in-shell, etc.

With my warmest appreciation of your society and the splendid work it is performing.

Yours very sincerely,
C. B. PARISH.

P.S.—I don't sell day-old chicks or sitting eggs or poultry of any description.

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

A Council Meeting will be held in the Master Builders' Room, Mount Street, Preston, on Saturday, April 26th, 1924. Chair to be taken at 3.30 p.m.

AGENDA.

1. Minutes of last Council Meeting.
2. Affiliations.
3. Letters and Communications.
4. Stop Watch Competition Report.
5. National Poultry Council Meeting at Harper-Adams'.—Delegates' Report.
6. Nomination of Officers for National Poultry Council, 1924-5.
7. Accounts.
8. Sub-Committee's Report. Laying Test, Educational, Finance.
9. Any other business.

E. COLLIER,
Organising Secretary.

P.S.—The following Sub-Committees are requested to meet at the same place at 2 p.m.:—

Finance.—Messrs. J. H. Hill, W. Hamnett, J. Graham, F. J. Butterworth, J. P. Willacy, and S. Marson.

Educational and Propaganda. — Messrs. W. Grove, T. Edmundson, J. Dewhurst, J. R. Hull, J. Whalley, W. Fletcher, and W. A. Hall.

Laying Test.—Messrs. J. Edmundson, J. C. Barnes, T. Hudson, H. Hayes, W. Hamnett, J. E. Morris, N. Holt, and H. Roscoe.

VENTILATION II.

By G. V. HOTBLACK, M.A.

Unfortunately I did not see my copy of "Eggs," published on April 2nd, until three days later than usual, and on reading my remarks printed under this heading, I wished that I had not written them. First, because I find that I omitted a paragraph on the subject of diffusion in gases, and secondly, because I realised that the subject is much too big for such treatment as one can give it. I immediately sent a telegram to the Editor, saying that my omission of a paragraph on diffusion made my remarks misleading. I hope that he, and anyone else who is interested, will accept an apology, and not open upon me the frontal attack, to which I, inadvertently, laid myself open.

When one gas is mixed with other gases it tends to diffuse throughout the whole volume occupied at a rate which is inversely proportional to the square root of densities of the gases concerned. Without going into technicalities it may be said that carbon dioxide, which is breathed out by chicks, diffuses throughout the air in a brooder up to a certain extent. If the house is sufficiently large and the exit apertures for the used-up air are adequate, the excess of carbon dioxide may be more or less satisfactorily removed. This is not the case when, for example, a small hot chamber is provided for a hundred or so chicks. Diffusion and convection currents will not remove carbon dioxide from the immediate neighbourhood of the chicks sufficiently quickly, and a dangerous concentration will remain around them, and probably throughout the whole chamber. In cases where the outflow of used-up air is inadequate—and this seems to be a fairly general source of complaint—the carbon dioxide may well be removed below the point at which it is generated, and at the level to which the *excess* tends to sink.

In the use of lime for this purpose there may be a danger of poisonous gases being generated by the action of water or moisture on certain impurities which may be present in the lime. I have made some experiments in this connection, but have obtained no evidence to indicate that there is any danger in using lime in reasonable proportions, but it must be remembered that lime is made in many localities and under widely differing conditions. A rough and ready test may be made by adding a little water to a sample of lime; if a smell of ammonia or rotten fish or carbide waste (i.e., the gas which is present as an impurity in acetylene, and gives to it what is generally supposed to be its characteristic smell) can be detected the lime should not be used until all traces of these have disappeared from the main bulk. I hope that what has now been written may be of some use to poultry-keepers in solving their individual problems.

I hoped to be able to write something helpful on the subject of the *poisonous organic substances* which arise as waste products from chicks and poultry in general. The results of my experiments are still, as is so often the case, distressingly inconclusive. It may safely be said that the "stuffiness" of brooders and buildings is due to what, for the want of a better term, must be described here as organic substances, rather than to the presence of excess of carbon dioxide. Apart from the gases arising from droppings, the waste products passing out of bodies through the throat, nostrils, or skin, require to be removed. The organic gases so produced will diffuse to a certain extent, but it appears that the bulk of the organic substances will tend to sink, and, therefore, a method of removal from the floor should be attempted.

A chick shows signs of distress in a very confined space, more quickly in an atmosphere from which the moisture is chemically removed than in an atmosphere where the moisture it breathes out is allowed to remain. In an atmosphere where excess of moisture is available the period during which it can exist, in a very confined space without showing signs of distress is surprisingly long. This indicates two things: First, that the actual amount of air required is not very great. Secondly, that the excess of moisture, i.e., water, tends to keep down the concentrations of carbon dioxide and poisonous organic substances. Without going into details a practical application is evident, viz., moisture is advisable to help remove harmful substances, and this again would be best placed *below* the floor level.

Inasmuch as disease germs are likely to be found in a greater concentration near the floor, it would appear that our existing methods of ventilation would be greatly improved if we can devise a means of having below the level at which, say, the chicks sleep, a supply of a germicide, water and lime, though possibly the two latter do much of the work which might be done by the germicide.

THE FRESH EGG CAMPAIGN.

ULSTER'S UNIQUE BILL.

(By an Agricultural Correspondent.)

A Bill—the first of its kind in the United Kingdom—to combat abuses in the egg trade has been prepared and presented in the Northern Parliament by Mr. Archdale, the Ulster Minister of Agriculture. The Bill is likely to become law in the course of a couple of months.

Of course, it has been evident for some time that the egg industry of Northern Ireland, and for that matter of other parts of the United Kingdom, needs to be organised and adjusted to meet modern conditions, more especially in view of the encroachments of foreign competition in the home markets. Any attempt to place the industry on a sound commercial footing must fail unless the special difficulties and problems to be faced by producers, collectors, wholesalers and shopkeepers are constantly borne in mind. When, as a result of a detailed examination of these very problems, the special Report of the Charlemont Commission on the Egg Industry of Northern Ireland became available it was evident to anyone familiar in the slightest degree with trade conditions and to the long-suffering consumer that in the face of the state of affairs disclosed and of the recommendations made in the Report legislative action became inevitable. Dr. Archdale, himself a practical agriculturist, acted with commendable celerity by introducing on the 9th instant in the Ulster House of Commons a Bill which is an example of progressive legislation as unique as it is interesting.

The Bill provides that every wholesale dealer will require a licence from the Ulster Ministry of Agriculture, and the issue of licences will be conditional on compliance with regulations to be laid down with regard to the proper testing, grading and packing of eggs and their freshness. Merchants who cold store, preserve, or pickle eggs will have to register their premises, which will be liable to official inspection, and all such eggs must be appropriately marked, e.g., "pickled," when exposed for sale in retail shops. Local market authorities are called upon to aid the good work by providing suitable accommodation at the egg markets, regard being always had, of course, to the value of the tolls accruing to them from the sale of eggs within their jurisdiction.

The importance of this new measure can be gauged fairly accurately from a single comparison. In 1923, over 3¼ million great hundreds (120) of eggs were sent from Northern Ireland ports to Great Britain, and the total imports into the United Kingdom from foreign countries and the Colonies was just over 20 million great hundreds. It is claimed that legislation such as this, which tends to improve the marketing of agricultural produce, will receive the unstinted support of consumers, who will welcome the advent of the fresher egg for the breakfast table. The sale as fresh eggs of eggs which have been kept in cold store, or which have been preserved, has been of all-too-frequent occurrence, and official steps to prevent the possibility of any such fraud will have the hearty support of producers, consumers, and reputable dealers.

EGG-LAYING COMPETITION.

BARROW-IN-FURNESS SOCIETY'S SUCCESSFUL TEST.

LIST OF RESULTS.

The twenty-four weeks' egg-laying competition promoted by the Barrow and District Utility Poultry Society is now completed. This test, which has been under the management of Mr. G. B. Tootall, Thorncliffe Poultry Farm, Barrow, has been very successful. No birds have died during the test, but one weak bird was killed with the consent of the owner.

The object of the test is to stimulate the breeding of high-fecund stock that lay large eggs. A glance at the tables will show how much more pronounced this desirable characteristic prevails in the heavy breeds as compared with the light breeds. The birds have been well housed, and the method of feeding dry mash.

The method of scoring is as follows:—2oz. eggs or over are classed 1st grade and score 10 points; 1½oz. and under 2oz., classed 2nd grade and score 8 points; eggs under 1½oz. do not score. Results:

Certificate winners for sixth and final period of four weeks:—

Section 1.—Joseph Barnes (23, first grade), total 23 eggs, 230 points.

Section 2.—A. Fawcett (20, 1st grade), total 20 eggs, 200 points.

Section 3.—Robert Atkinson (20, 1st grade), total 20 eggs, 200 points (R.I.R.); C. Atkinson, ditto.

Section 4.—Hon M. Cross (23, 1st grade), total 23 eggs, 230 points (Ancona).

Prize winners for the 24 weeks of the test:—

Section 1.—T. B. Grice, 112 eggs, 1,118 points, first; Miss Mary Newton, 99 eggs, 930 points, second; J. Tyldesley, 89 eggs, 856 points, third

Section 2.—T. B. Grice, 106 eggs, 936 points, first; Miss Mary Newton, 88 eggs, 814 points, second; J. J. Fisher, 69 eggs, 674 points, third.

Section 3.—T. B. Grice, 93 eggs, 926 points, R.I.R., first; Hon. M. Cross, 91 eggs, 874 points, Buff Orpington, second; T. B. Grice, 89 eggs, 860 points, Light Sussex, third.

Section 4.—Hon. M. Cross, 81 eggs, 800 points, Ancona, first; A. Fawcett, 71 eggs, 698 points, Ancona, second; E. Baldwin, 71 eggs, 672 points, Ancona, third.

Supreme championship certificate and medal over all sections for the 24 weeks; T. B. Grice, 112 eggs, 1,118 points, White Wyandotte.

ANSWERS TO QUERIES—Continued.

L. T. M. (Heathfield). With regard to the White Bresse cock to Light Sussex hens and sex-linked inheritance. I have not personally tried this, but reports to hand state that it is quite reliable, the pullets coming with dark legs and the cockerels with white. It is a most useful cross. Very much interested in what you say as to the effect of Ferri et quininae cit, and the satisfactory results you have obtained from its use. I am pleased to say that others have written me to the same effect, and I am sure it must be gratifying to Capt. Leeney to know that his advice has been so thoroughly appreciated.

R. H. (Hope). The samples you sent are all of good value. It is not often I get the pleasure of handling such a good lot. I should like to see rather better sharps, but these are of fair average quality. Of the two samples of bran No. 1 is much the better, and is well worth the additional 6d. cwt.

W. M. B. G. (Co. Derry). I am pleased to hear you have just commenced to read "Eggs," and that you find it far better than any other poultry paper, and so have stopped all others for it. We get scores of letters such as yours. With regard to the samples you send. The ground oats are not "Sussex" ground. If you examine them closely you will see that the husk is very apparent, and a good "Sussex" ground should have a more "floury" feel about it. However, this would answer your purpose and at the price, fair value. The maize germ meal is a good sample and good value for the money, and the middlings are really very good indeed. The meat and bone meal is just fair; good value at the money. The fish meal is just moderate, and I think you would find the meat and bone meal the better value. Dried yeast would be better in the powdered form, but this is a good sample at the money. You must be very careful in bringing the chicks on to dry mash, and must not make the change too suddenly. I should start them on the following:—4 lbs. bran, 4 middlings, 1 each Sussex ground oats and maize germ meal, and half meat and bone meal. The grain feed:—two parts wheat, one of short heavy white oats, and one of kibbled maize. As the chicks will have free range they will pick up abundance of insect life, and the meat and bone meal has been reduced to half a pound for this purpose. Yes, you could give the buttermilk to the young stock without any harmful results. Mix them up a mash with it and give them once a day. In that event I should not give any animal food in the mash at all.

POST-MORTEMS—Continued.

F. R. The chick had a number of gape worms low down in the trachea, which rendered respiration impossible. It is hoped to treat the subject in an early issue of "Eggs," with the latest suggestions offered by experimentalists.

K. W. The chicks had the infectious lung trouble, known as pneumomycosis, and caused by the spores of a fungus.

Cantab. Although the liver of this hen was very high coloured and indicating nutritional errors, it was **not** the cause of death. Peritonitis supervened on flooding of the abdomen with loose egg-material, which had coagulated.

A. M. P. Pulmonary apoplexy. He had a heart big enough for a full-grown bird.

H. Mc., C. W. The cock had a much dilated heart, which failed. It is not a rare thing in cock birds.

J. S. C. Dropsy was the final trouble. It was caused by very rapid degeneration of the liver, and must be regarded as of dietetic origin. Do you use much fish meal or cod liver oil?

L. R. W. It is an infectious disease, known as coccidiosis.

P. H. Not an infectious disease, but cerebral apoplexy. This hen was much oppressed by internal fat.

Col. D. J. Ruptured oviduct, escaped contents. Peritonitis.

F. P. B. The chicks had coccidiosis, and from the advanced character of the lesions in such young birds, it is likely to have been transmitted in the eggs.

C. A. G. This is pneumomycosis, the lungs showing the characteristic tubercles.

"C. M." The chick had infectious pneumonia.

G. T. P. W. W. Hen. Inflammation of the heart sac (pericarditis) of the kind that is now known as gout. The investing membranes were covered with urates of sodium, and the thickening and contraction brought the organ to a standstill.

PRESTON AND DISTRICT UTILITY POULTRY SOCIETY.

The Prize Distribution in connection with the 7th Annual Laying Competition of the above Society, which has just concluded, will take place at the Master Builders' Room, Mount Street, Preston, on Thursday, May 1st. Mr. C. H. Dobbin will distribute prizes. A Whist Drive will follow, tickets for which will be 1s. each. They may be obtained from any member of the committee.—E. COLLIER, Hon. Sec.

Scientific Poultry Breeds' Association.

APPLICANTS FOR MEMBERSHIP.

Smith, Capt. W. H. W., Panthill, Barcombe, Lewes.
Eates, A. R., Loud House, Mersham, Nr. Ashford, Kent.
Russell, Jas. M. D., The Oaks, Yateley, Hants.
Thomas, R. (Senr.), 9, Grey Road, Walton, Liverpool.
Thomas, Mrs. E. M., Cefn Coed House, Roath Park, Cardiff.
Dalton, A. E., Redcot, North Hykeham, Lincoln.
Griffiths, J., c-o Metropol Cafe, High Street, Rhyl, N.W.
Mobbs, Miss T. M., 41, Roman Road, Bow, E3.
Webster, W., Shackleford, Nr. Godalming, Surrey.
Baker, W. B., Honiton Inn, Awliscombe, Honiton, Devon.
Bunbury, R. H., Bank Top Poultry Farm, Holmbridge, Nr. Huddersfield, Yorks.
Greenshield, W. P., Oare Pennings, Marlborough, Wilts.
Thomas, R. E., Brook House Farm, Goosnargh, Preston.
Duff, R. W., Laker, Crieff, N.B.

NATIONAL EGG LAYING TEST, 1923-24.

REPORT OF THE FIFTH MONTH, 21st FEBRUARY TO 19th MARCH, 1924.

The set back in the seasonal rise in production, referred to in the last report, reached its lowest level on the first day of the month under review, when 1,128 eggs were collected. From that date the daily collection rose steadily, as the weather conditions improved, until on the 21st day it reached 1,521 eggs, the highest point touched during the month.

Practically all breeds contributed to this improvement, but, as might be expected at this season, it was most marked amongst the light breeds, which, up to the present, are well behind the heavier. The average of the latter to date is 67.30 eggs per bird, while that of the high breeds is 61.05. Amongst the light breeds Black Leghorns stand first, with an average of 62.57, and of the heavy breeds Croad Langshans, of which there is only one pen (Miss Skinner's) are well ahead, with the high average of 110.40 eggs in the 20 weeks. White Wyandottes, with a total entry of 415 birds, stand a good second, with an average of 74.26 eggs per bird. As a breed the latter show a distinct improvement on previous years, and promise to put up a fine record for the test. The season so far has been much in favour of the heavy breeds, and White Wyandottes appear to have withstood the bad weather far better than any.

DUCK TEST.—LARGE FLOCK.

A further advance in the egg yield is to be reported for the large flock—the average for the month working out at 21.52 eggs per duck. This has increased its lead over the small flocks, the flock average to date standing at 88.78 eggs per duck against the small flock's average of 84.51.

Highest pen score to date in the section was retained by the Molassine Co.'s Fawn and White Runners, with a score of 659 eggs, but the best score for the month was put up by Messrs. Berry and Adams' pen of the same breed, with a score of 135 eggs.

SMALL FLOCKS.

A substantial improvement in production is shown in these sections, the average rising from 13.86 per duck recorded last month to 18.05 for this month.

Capt. Long's pen of Khaki-Campbell's not only retains first place in the small flock, but now takes the lead over the whole test. with a record of 710 eggs (score value 677).

The health of the ducks continues to be very good, as it has been all through the very severe weather experienced throughout the winter.

EGG PRODUCTION OF LEADING PENS.

Pos.	Owner of Pen.	Total Eggs.	Test Score Value.
	SECTION 1.—CHAMPIONSHIP (10 Pullets).		
1.	Metacalfe, Few, and Co., Ltd.	839	824
2.	Frank Snowden	793	786
3.	Warwick Rogers	775	773
	SECTION 2.—WHITE LEGHORNS (Five Pullets).		
1.	F. R. Welch	459	459
2.	Mrs. E. M. I. Knight	453	451
3.	David Baxter	423	423
	SECTION 3.—BLACK LEGHORNS (Five Pullets).		
1.	Frank Snowden	460	456
2.	H. G. Hood and Sons	405	405
3.	J. and A. Moore	405	405
	SECTION 4.—NON-SITTING BREEDS (Five Pullets).		
1.	J. H. Thompson	386	385
2.	R. B. Reed	369	369
3.	Major E. T. Kingscote	348	348
	SUB-SECTION 4a.—EXCHEQUER LEGHORNS.		
1.	Sam. Oouthwaite	261	257
2.	Vice-Admiral C. Cayley	249	249
3.	D. G. Bloom	182	182
	SECTION 5.—WHITE WYANDOTTES (Five Pullets).		
1.	Harold Seddon	485	484
2.	Mrs. M. E. Clay	492	481
3.	F. Townsend and Son	467	466
	SECTION 6.—RHODE I. REDS (Five Pullets).		
1.	W. and T. Salt	508	507
2.	Arthur Gawthrop	436	436
3.	E. G. Hunt	427	427
	SECTION 7.—SUSSEX (Five Pullets).		
1.	W. Bradbury	430	430
2.	F. Rossalls-Sandford	401	401
3.	C. L. and J. A. Thomson	366	366
	SECTION 8.—SITTING BREEDS (Five Pullets).		
1.	Miss K. B. Skinner	552	486
2.	Miss Harrison-Bell	445	444
3.	A. Wright	427	427
	SUB-SECTION 8a.—AUSTRAL ORPINGTONS.		
1.	H. R. Parson	355	354
2.	Hon. Mrs. Adams	358	249
3.	Frank Flowerdew	250	249
	SUB-SECTION 8b.—BUFF ROCKS.		
1.	Miss Harrison-Bell	445	444
2.	A. Wright	427	427
3.	F. R. Welch	393	393
	SUB-SECTION 8c.—ORPINGTONS.		
1.	Miss M. Fowler	479	400
2.	Mrs. K. Simpson	400	399
3.	Major J. A. Morrison, D.S.O.	348	348
	SECTION 9.—MEMBERS N.U.P.S. (Two Pullets).		
1.	A. H. Robinson	186	186
2.	S. Hufton	180	180
3.	D. P. Foster	174	174
	SECTION 10.—TEAMS (Five Pullets).		
1.	Tottenham Utility P. Society	428	427
2.	North Lancs. and Westmoreland U.P.F.	313	413
3.	Moore and District U.P. Society	411	389

SECTION 1 to 10.—BREED AVERAGES AND MONTHLY SUMMARY.

Birds.	Deaths.	Breed.	Eggs.	Average.
713	9	W. Leghorns	43755	61.68
179	1	B. Leghorns	11170	62.57
42	2	Anconas	2463	59.95
26	1	Exchequer Leghorn	1046	40.22
15	—	Silver Campines	606	40.39
10	—	Cuckoo Leghorn	609	60.90
8	—	White La Bresse	499	62.35
5	—	Black Minorcas	202	40.40
5	1	Buff Leghorn	261	52.20
1	—	Brown Leghorn	38	38.00
415	10	White Wyandottes	30444	74.26
321	6	R.I. Reds	20114	63.20
126	—	Light Sussex	7887	62.60
5	—	Speckled Sussex	284	56.80
70	—	Buff Rocks	4857	69.38
42	1	Australorps	2109	51.29
36	1	Buff Orpington	2505	69.58
25	—	Barnevelders	949	37.96
10	—	White Orpington	476	47.60
5	—	Blue Orpington	348	69.60
5	—	Croad Langshan	552	110.40
5	—	Gol. Barred Plymouth Rock	184	36.80
5	—	Golden Laced Wyandotte	266	53.20
4	—	Marsh Daisies	158	39.50
2	—	Barred Rocks	144	72.00
2080	32	Total eggs recorded	131926	—
		Eggs unrecorded	741	—
		Total to Date	132667	64.21

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, THURSDAY, APRIL 17th, 1924.

GRAIN AND FEEDING STUFFS.—English wheat is in small supply and meets a fair enquiry at slightly more money, the average quotation, 10s. 8d. per cwt., showing a rise of 1d. on the week. The market for imported wheat is dull, and any changes in prices are in a downward direction. Moderate offerings of English feeding barley maintain late rates, but ample supplies of imported grinding barley are available, and with a rather slow trade quotations are lower. Home-grown oats are in moderate request at unchanged rates, except at Hull, where prices are higher owing to the improved demand. Imported oats are cheaper, holders endeavouring to reduce landed stocks, while parcels afloat are freely offered at lower prices

Milling offals are in quiet demand, except in London, where there is a strong enquiry at higher prices. Trade for meals is quiet, and the easier tendency reported last week continues.

MILLERS' OFFALS.—Bran (British): Bristol, £8 5s.; Hull, £7 12s.; Liverpool, £8; London, £7 15s. Broad Bran: Hull, £9 2s.; London, £8 12s. Middlings: Fine (Imported): London, £9 2s.; Coarse (British): Bristol, £9 2s.; Hull, £8 10s.; Liverpool, £8 5s.; London, £8 5s. Pollards (Imported): Bristol, £7 10s.; Hull, £6 15s.; Liverpool, £7 2s.; London, £7 5s. Rice Bran: Bristol, £8; Liverpool, £7 10s. MEAL.—Barley Meal: Bristol, £10 10s.; Hull, £10; London, £10 2s. Maize Meal: Bristol, £11 15s.; Hull, £11; Liverpool, £10 12s.; London, £11 15s. Maize Germ Meal: Bristol, £11; Hull, £10; London, £9 5s. Maize Gluten Feed, Bristol, £11; London, £9 7s.

EGGS AND DEAD POULTRY.

With an active demand for eggs, prices have hardened, especially for British and Irish, which now average 13s. 3d. and 12s. 6d. per 120, respectively, for best quality, against 12s. 6d. and 11s. 11d. last week. The rise in price for continental eggs is less marked, amounting only to about 3d. per 120, but Italian make better prices. There is a continued scarcity of home-produced poultry, and prices are again generally the turn dearer at Bristol and Liverpool, while recent high values at London are fully maintained, especially for ducklings.

Week-end Prices (per 120).—Eggs: British, 13s. 6d., 12s. 9d.; Irish, 13s. 0d., 12s. 6d.; Danish, 15s. 0d., 13s. 6d.; Dutch, 14s. 9d., 12s. 9d.; Belgian, 13s. 9d., 13s. 0d.; Italian, 13s. 9d., 12s. 0d.; Egyptian, 8s. 3d., 8s. 0d.; Moroccan, 9s. 0d., 8s. 9d.

Dead Poultry (per lb): Fowls—Surrey, 2s. 6d., 2s. 4d.; Irish, 2s. 2d., 1s. 11d.; Others, 2s. 2d., 1s. 11d. Ducks, 2s. 10d., 2s. 6d. Geese, 1s. 3d., 10d.

EGGS.

Per Doz.—Ashford: First, 1s. 6d.; Second, 1s. 4d. Birmingham: First, 1s. 3d.; Second, 1s. 1¼d. Carlisle: First, 1s. 5d. Chelmsford: First, 1s. 5½d.; Second, 1s. 3½d. Derby: First, 1s. 3d. Exeter: First, 1s. 2d. Hereford: First, 1s. 0d. Hull: First, 1s. 1d. Ipswich: First, 1s. 6d.; Second, 1s. 3d. King's Lynn: First, 1s. 3d.; Second, 1s. 0d. Lincoln: First, 1s. 3d. Llandilo: First, 1s. 0d. Newport (Mon.): First, 1s. 3d.; Second, 1s. 2d. Norwich: First, 1s. 4d.; Second, 1s. 3d. Penzance: First, 1s. 0d.; Second, 11d. Salisbury: First, 1s. 4½d.; Second, 1s. 4d. Shrewsbury: First, 1s. 2d.; Second, 1s. 0d. Skipton: First, 1s. 1d. York: First, 1s. 6d.; Second, 1s. 4d.

FOWLS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 10d. Derby: First, *5s. 9d.; Second, *3s. 6d. Exeter: First, 1s. 8d. Hereford: First, 1s. 6d.; Second, 1s. 4d. Ipswich: First, 1s. 10d.; Second, 1s. 8d. Lincoln: First, *5s. 6d.; Second, *3s. 6d. Llandilo: First, 2s. 4d.; Second, 2s. 2d. Newport (Mon.): First, 1s. 8d.; Second, 1s. 6d. Shrewsbury: First, 1s. 6d.; Second, 1s. 3d. York: First, *6s. 6d.; Second, *5s. 0d.

DUCKS.

Per lb.—Exeter: First, 1s. 7d.

* Per Head.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, April 30th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

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Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

VACCINES. SERUMS.

We feel that our readers will not be satisfied until this matter has been thoroughly threshed out, and the value of vaccine and serum treatment proved or disproved. There has been no satisfactory evidence so far given to warrant our conceding the claims which have been made as to their value, nothing which indicates that they have given any better results than the older remedies. The following is taken from the report of the "Poultry Farmer's Week," which is held at the Ohio State University, and is from the report of the proceedings published in the "American Poultry Journal":—

> "Most interesting and valuable data on experimental vaccinating for roup was presented by Professor L. W. Goss, Doctor of Veterinary Medicine, Ohio State University. The experiment covered a period of two months, and was conducted by himself and Mr. Roy E. Roberts, Instructor in Poultry Husbandry, also of Ohio State.
>
> On December 1st the birds were weighed, and the condition of their health noted. Roup was present in the flock.
>
> On December 8th half of the flock was vaccinated, and again the condition of health noted. That is, every other bird was vaccinated as it was taken from the catching crate. They were given exactly the same food and care, and housed together as one flock. Commercial vaccine was used.
>
> On January 1st the birds were weighed again.
>
> A trap-nest record was kept of each bird in the experiment.
>
> On December 8th there were 220 roup lesions on the vaccinated birds, and 203 on those not vaccinated.
>
> December 20th roup lesions had increased to 267 among the vaccinated birds and to 223 among those not vaccinated.
>
> On January 1st there were 152 lesions on the vaccinated, and 163 on the unvaccinated birds.
>
> Of the vaccinated birds 11 died, and of the unvaccinated 18.
>
> The vaccinated birds lost 8.9 per cent. in weight, and the unvaccinated birds 7.8 per cent.
>
> The egg record is also interesting. In the ten days before vaccination, the vaccinated birds laid 439, the unvaccinated birds 495. In the ten days after vaccination the vaccinated birds laid 392 eggs, the unvaccinated 454. In the next period of ten days the vaccinated birds laid 429 eggs, and the unvaccinated 480.
>
> The fortune is still waiting for the man who discovers a cure for roup it seems."

The excuse for keeping this matter to the fore is that we want to arrive at the truth. There are certain individuals, wholly unqualified to express an opinion, who are claiming the most wonderful results from the use of vaccines and serums and other concoctions. Neither their practical experience nor their knowledge of disease entitles them to write as they do. There is little doubt that some of them are but the paid agents of proprietors of various so-called remedies, and what they write is written at dictation. They are doing real injury to the poultry-keeping public by endeavouring to induce them to buy various concoctions and so-called remedies which purport to cure or prevent anything from B.W.D. to Bumblefoot. Not more than twelve months ago one of these individuals was writing just as enthusiastically on another totally different preparation than that he is now "writing up," and claiming for it the same results.

We wish it to be distinctly understood that we are not reflecting in any way on those gentlemen who have criticised the attitude we have taken up on this question in these columns, although they hold a different view. We have not the slightest wish or intention of casting any doubt on the sincerity of their opinions, but we would ask them, without any other motive but that of gaining information, what explanation they have to offer of the result of this experiment? There is no desire to prove ourselves right, or that they are wrong. We simply want to arrive at the truth, and that is why this question is put.

Here is the fact, that this experiment was carried out by an acknowledged expert in veterinary medicine, assisted by a practical expert in poultry husbandry, conducted under conditions which must be regarded as satisfactory for a test of this kind. Vaccination did not secure immunity. On the contrary, the vaccinated birds as compared with unvaccinated appear to have been more seriously affected, although a higher percentage of the latter died.

Still, the differences were so small, and, taking into account that the vaccinated birds lost more weight and produced considerably less eggs, one must say that so far we have not the slightest proof that vaccination secures immunity; very far from it, for if an actual balance is struck the result is not favourable to the vaccinated birds.

That is the difference between a laboratory test, and one in the field; it is on the latter we must rely. If we look to the laboratories to assist us in the question of disease, it is surely obvious that a thorough field test must be made of their discoveries before their use can be absolutely relied on.

At any rate, we are still in need of evidence that vaccines and serums have so far effected results which will convince any thoughtful and experienced person that they are more effective than the older remedies which were in use thirty or more years ago, or that they will confer greater immunity than well-ventilated houses, and generally hygenic conditions.

Modern Poultry Feeding.

By TOM NEWMAN.

CHICKEN REARING EXPERIMENTS AT WELLINGHAM P.F., RINGMER.

The sixth week of the first series of experiments is now complete; the weather has again been abominable—sleet, snow, heavy rain, cold winds and fog. This week is to April 11th. Let us hope that in future we shall have better weather conditions to report. The chicks continue to make good progress and are in excellent health. I must refer readers to the issue of April 9th for mash formulas. In next week's issue I hope to give full particulars of the second series.

FIRST SERIES.

Experiment 1.—Average weight, 13.28 ozs.; average gain, 3.6 ozs.

Experiment 2.—Average weight, 12.8 ozs.; average gain, 3.14 ozs.

Experiment 3.—Average weight, 12.8 ozs.; average gain, 3.26 ozs.

It will be noted that the greatest gain this week has been made in No. 3 experiment, which pen has now an average weight equal to that of No. 2, and we shall possibly see some alterations in positions in a week or two. The average gain for the week is very satisfactory, and for the next few weeks we can expect to see it more than maintained as the consumption of food becomes greater.

SUMMER FEEDING.

As I am receiving very many letters in reference to changes to be made in the mash for the summer months, it would be well for readers to understand that the idea of changing the feeding to fit the calendar is altogether a fallacy; neither should changes be made with an eye on the thermometer. It is nonsense to talk of maize as being "too heating" for the summer months, more especially when we are dealing with heavy producers. Any alterations in the mash should be made with due regard to the birds' bodily condition. After a prolonged period of heavy laying a hen is sure to have drawn fairly heavily on her bodily reserves of fat, if there should be a deficiency of fats in the ration, and that is why at the end of May we find the eggs beginning to get a bit smaller. At such a time if maize is fed as the sole grain, it will often result in an increase in the size of egg and a prolongation of the laying period. Many pullets fall into a premature moult simply because of heavy production and a deficiency of fats in the food. Maize is the best grain for heavy production, and a maize-fed bird will be in a better condition to moult and will come through it more easily than will those with a grain feed exclusively of wheat or oats. But feeding is not a matter of rule-of-thumb; it is a question for the observant poultryman, the bodily condition of his birds. There is only one alteration I would suggest, that is in the case of birds having free range. There will be abundance of insect life during the next few months, and therefore the addition of any animal food to the mash is wholly unnecessary; indeed, if they had very extensive range, I would not give a mash feed at all, as they would find all they required, except perhaps in a spell of prolonged dry weather.

MILK v. MEAT.

I see that Dr. Jull, Chief Division of Poultry Husbandry, U.S.A., Dept. of Agriculture, Washington, is of opinion that skim milk will not entirely replace meat scrap. He would add 18 to 20 per cent. meat scrap to the mash when the layers were given all the skim milk they could consume. Our experience is all against this theory. In the development of the chick, as proved by the Wellingham experiments, we found that meat meal or fish meal was entirely unnecessary. The No. 4 experiment gave us results which have never been equalled, and with the formulas we are now using, even with only 5 per cent. dried milk and no meat or fish meal, the results are entirely satisfactory so far. I am fairly confident that if the basal ration is right animal protein other than milk is not necessary, and it is quite possible that we shall entirely alter our views as to the necessity of fish or meat meal in the near future. It is the composition of the mash that matters, and the constituents of each ingredient; the less animal protein we use the healthier will be our stock. While on this subject may I say a word of caution on the question of dried milk? The shortage and consequent high prices have as usual made the opportunity for the rogue, the samples are now being sold which are not pure dried milk, but a mixture of cereal meals and milk. In one sample submitted to me to-day the ash content was only 5.30 per cent., whereas in a pure sample it should be 25.1 per cent., and, as you know, the chief value of dried milk for chick rearing lies in the ash content. This appears to be a mixture of maize flour and milk, and is described as of "high feeding value." Probably it is, but it would not compare with the pure milk, and would not be worth more than 20s. per cwt. The carbo-hydrates were given as 52.00 per cent. in a sample of pure dried skim milk they are 25.8. I do not at present know of any means by which this may be detected except by microscopic examination or analysis.

VITAMINS AND BREEDING STOCK.

In connection with feeding vitamins to parent birds the results secured by the Wisconsin Experiment Station are as follows:—

White Corn, 15 per cent. hatch.

Yellow Corn, 23.6 per cent. hatch.

White Corn and Pork Liver, 52.2 per cent. hatch.

Yellow Corn and Pork Liver, 62.0 per cent. hatch.

White Corn and Skim Milk, 20.9 per cent. hatch.

Yellow Corn and Skim Milk, 50 per cent. hatch.

Details are lacking, and it is impossible to express an opinion until something more is known. One feels dubious as to attributing the difference in the hatchability between birds fed on white and yellow corn wholly to the absence of vitamins; in fact, I think the vitamin theory is a little overworked, and the hatching in any of the experiments was rather poor. It is so easy to attribute these differences to the vitamins, and in most cases there are other factors which have a distinct bearing on the results. However, it is no good speculating, and there is nothing to show definitely that pork liver is superior to any other liver, or even meat meal.

TO READERS.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick Sussex.

BREEDS AND PRODUCTION.

A study of the breed averages in the Bentley Test is interesting. Presumably the bitterly cold east winds which have prevailed have proved too severe a test for the lighter breeds, for the heavies have the better of the argument as far as the last report, which brings us up to March 19th, goes. Pride of place belongs to Miss Skinner's Croad Langshans, with an average of 110.40 per bird. This is extraordinarily good, and the White Wyandottes, which come next, are a very poor second, the average being 74.26 per bird, but it is necessary to point out that the leading pen, which is the property of Mr. Seddon, has laid 485 eggs, of which only 50 are second grade, an average of 97 eggs per bird. Mrs. Clay's pen laid seven eggs more, but failed a little in size of egg. A pen of Rhode Island Reds has beaten them. These are the property of Messrs. W. and T. Salt, and they now occupy second position in the whole test, having laid 507 eggs, an average of 101.2 per bird, but the average for the breed is only 63.20. One pen of Barred Rocks has averaged 72.00. Seven pens of Buff Orpingtons have averaged 69.58; this is encouraging, and there seems to be life in the breed yet. Buff Rocks have done equally well, and are becoming increasingly popular. Black Leghorns slightly lead the Whites, a pen of Cuckoo Leghorns has an average of 60 eggs per bird, but, with the exception of the White Bresse, which average 62.35 per bird, the other light breeds have proved disappointing. Barnevelders have not covered themselves with glory, their output is very low, but their reputation for size of egg has been well maintained, as out of 949 eggs laid only 13 have been second grade. Perhaps the most disappointing have been the Australorps. The leading pen, the property of Mr. H. R. Parsons, has done fairly well, an average of 69 eggs per bird, and the proportion of second grade not unduly high, but the remaining pens are most disappointing, and if the breed is to have a future, then it is up to breeders to work hard for improvement. The 42 birds entered have laid 2,109 eggs, an average of 51.29 per bird; of these no fewer than 752 were second grade, but what is still worse is the high percentage of underweight eggs laid—172. The White Wyandottes are the next offenders in this respect. To some extent we are prepared for this, but they have laid less than one underweight egg per bird entered, and have compensated for it in numbers, while the Australorps have averaged 4½ underweight eggs per bird, and have nothing to show for it in numbers. It is to be hoped that breeders of the Rhode Island Red will pay a little more attention to size of egg.

Time was when one could count on 2oz. eggs from this breed, but there are distinct signs that the craze for numbers is having its effect. Wyandotte breeders have effected an improvement, and it is up to Red breeders to check this tendency to the small egg. Exchequer Leghorns, Browns and Buffs, Minorcas, Marsh Daisies, Silver Campines, White Orpingtons, and the lesser known varieties of Wyandottes and Rocks, viz., the Golden Laced and Golden Barred, have all failed to distinguish themselves. Not one pen of the beautiful Silver Laced Wyandottes are entered. Are they but a fancier's variety now?

SEX RATIOS.

I have received the following letter from Mr. Collins :—

> "I fully expected that after your leader on 'Sex Ratios' you would be swamped out with letters from readers giving their opinions as whether it was, or was not, a 'cockerel year.' Personally I have never known such a thing; in the twelve years I have been breeding I have invariably had a preponderance of pullets, usually from 54 per cent. to 56 per cent females, taking the whole season's figures. It is only my own idea, but I am quite convinced of the truth of it—that the sex ratio is merely a matter of strain. We know that human families sometimes show a preponderance one way or the other—and say that 'Boys or Girls run in the Dash family.' Why should it not be the same with birds?"

I am afraid this isn't very conclusive, Mr. Collins, because as a matter of fact there are more boys born every year than girls, and a few exceptions either way would hardly appear to affect the general question. We have a few males which, however mated, have always been known to give a big preponderance of pullets, and there are some examples the other way, but I must confess that one feels a little bit dubious as to whether we shall ever find a solution to the problem, for so far we only seem to have amassed a lot of contradictory evidence.

SUNSHINE.

What a few days of sunshine mean to the chicks! One thing is very noticeable, that is the slump in the enquiries as to leg weakness and the remedy which has occurred during the last week or ten days. I have always said that the trouble is more prevalent in dull sunless springs and in the early part of the season than later on, and there is plenty of proof that this is the case. One case of toe-picking has been reported already. This vice is always more easily prevented than cured, and if we have a very bright sunny period there may be some bad outbreaks, and where chicks are run in large flocks this may mean a serious loss. Therefore I should take no risk, but would blue-wash the brooder house, windows, and all. Members will remember what a bad outbreak occurred in the very sunny spring we had three or four years ago.

SCALY LEG.

Some years ago we had a little discussion in these columns as to whether scaly leg was inherited or not, the conclusion arrived at was that scaly leg is not inheritable, but that was not the unanimous conclusion by any means. It was agreed that certain birds were immune, and that if these were bred from the probability was that the progeny would prove immune. Now I take the following from the "American Poultry Journal," which seems to confirm this view. Speaking of the late Mr. H. Felch, the writer relates the following conversation:—"He said he had long been troubled with scaly shanks, and they were particularly unslightly in a feathered-legged bird; and then he made up his mind neither to breed, nor set, or even to own a scaly-legged bird. As a result of culling out such specimens he had long been free from the trouble. Writer has acted on the suggestion ever since. If the practice was generally followed, and only fowls with smooth, clean scales were bred, the ravages of the scaly-legged mite would be minimised. It seems as if some fowls were immune, and the breeding of them may accentuate immunity."

KEIGHLEY AND DISTRICT BRANCH LAYING TEST.

I regret that the previous report went astray, it was received from Mrs. Wilson by me, and duly forwarded to the printers, but we suppose was lost in the post.

The sixth month of Test, held at Minorca Farm, Denholme, under the management of Mrs. Wilson, concluded on April 16th. Results have been excellent for this month. W. 'Dotte No. 61 has laid 28 eggs in the 28 days, which makes a sequence of 35 eggs in 35 days. Nos. 48, 69, 65 and 60 in the Light Breeds have laid 27 eggs each in 27 days, while 20 per cent. of whole flock have laid 26 eggs in the same period. There has been several cases of broodiness, and, although the general health of the birds has been very good, there has been one death. Scoring for this month is :—first grade eggs, 2 oz., first twelve eggs under that weight are allowed to score:—

LIGHT BREEDS.

Position.	Owner and Breed.	First grade.	Second grade.	Total value.
1.	W. Bancroft (Ex.L.)	119	2	121
2.	S. Preston (W.L.)	110	2	112
3.	H. Kershaw (W.L.)	110	—	110
4.	Capt. Owen (W.L.)	105	3	108
5.	S. Lawton (W.L.)	107	—	107
6.	S. Lawton (W.L.)	103	—	103
7.	Ed. Smith (Ex.L.)	89	10	99
8.	F. Snowden (W.L.)	97	—	97
9.	H. Buckley (Blk.L.)	92	—	92
10.	Mrs. H. Wilson (W.L.) ...	90	1	91
	Mrs. J. R. Thompson (W.L.)	90	1	91

Other scores are: No. 11 (90), No. 15 (88), No. 2 (85), No. 18 (83), No. 36 (82), No. 39 (81), No. 9 (80), No. 60 (80), No. 44 (80), No. 19 (77), No. 31 (77), No. 69 (77), No. 48 (75), No. 53 (73), No. 66 (73), No. 41 (64), No. 59 (55), No. 38 (52), No. 37 (50), No. 40 (40), No. 14 (33). No. 17 (77).

HEAVY BREEDS.

Position.	Owner and Breed.	First grade.	Second grade.	Total value.
1.	H. Downsborough (W.W.) ...	115	—	115
2.	Mrs. G. Barker (W.W.) ...	109	2	111
	H. Rawlinson (W.W.) ...	104	7	111
3.	H. Kershaw (W.W.)	102	7	109
4.	H. Nelson (W.W.)	97	11	108
5.	H. Dixon (W.W.)	103	4	107
6.	J. Ellison (R.I.R.)	105	—	105
7.	S. Lawton (W.W.)	99	—	99
8.	S. Lawton (L.S.)	99	—	98
	J. H. Brayshaw (W.W.) ...	97	1	98
9.	S. Preston (Buff R.)	95	2	97
10.	F. Hodges (R.I.R.)	88	—	88

Other scores: No. 10 (87), No. 63 (87), No. 62 (87), No. 6 (86), No. 12 (84), No. 35 (82), No. 32 (80), No. 20 (78), No. 3 (76), No. 8 (71), No. 27 (70), No. 30 (58), No. 29 (48), No. 22 (43); No. 28 (31), No. 13 (45), No. 57 (5).

Some Fruit Growing Notes to Help Poultry Keepers.

By F W. WHEELER, F.R.H.S.

EXPERIENCE TEACHES (Continued).

I say "continued," but really I am to-day writing the promised comments on my article headed as this one. (March 19th, page 234).

In the case under review (*a*) "The close planting of fruit trees," was, of course, purposely done, with a special object in mind, and the idea of running poultry under came as an after-thought; but it serves to remind us that on the poultry farm much wider spacing is more convenient than when orchard work is the only object.

(*b*) "Cultivation" and "Weeds." Certainly fowls, by their scratching, do considerably help to keep the ground free of weeds and rank grass, and where trees are planted in pockets in a field, it is wise to keep them clean for the first five or six years, but we have also to watch that the birds do not scratch for worms and insects so energetically in these pockets that they unearth and destroy the valuable young fibrous roots always near the surface. So take care, and if necessary put a piece of low wire netting to prevent this evil. Damaged roots, especially of plum trees, will throw up a lot of suckers, which are very annoying and detrimental.

(*c*) The good results noticed from the "effects of of the poultry manure" touches on a point I am still seeking more information about, and desirous of hearing of others' experiments, particularly as to the quantities required per tree to make a really noticeable benefit to the fruit, both in quality and quantity; likewise, how far its free application may cause excessive wood growth.

I am trying varying applications pricked into the ground around fruit trees (extra to the droppings from the birds running under), but have not yet collected sufficient information to write fully on the subject. If any readers have in any way tested this, I should be glad to know results for sake of comparison. The nature of the soil must have a distinct bearing on such trials. Unfortunately the greater part of my ground is heavy, and only very little moderately light.

I feel sure that experience will teach us that to obtain fine quality fruit we shall have to help our poultry manure by the addition of chemicals, especially with potash; any way the poultry keeper gets the bulk of his manure gratis, as against the fruit grower, pure and simple.

(*d*) Now about the remark, "Apples being injurious to poultry." While reading this we must keep two or three things in mind. Firstly, Mr. Faircliffe undoubtedly found that the combination of fruit and poultry was so good that he extended this ideal, and that after one small experiment. Secondly, an excess of apples would probably cause scouring, which might easily come about from a quantity of so-called windfalls (through maggots in apples), or from a heavy fall of fruit after a gale. In which case it would not be a big matter to go round and collect these. One must also remember that, with the exception of the above cases, apples hold tightly to the trees until ready for picking, and certainly not many would fall to the ground.

Choice fruit wants gathering at the right moment, and before it is allowed to ripen to such a degree that it falls off.

The following extract from a letter sent to me by a poultry-keeper, who has had a long and wide experience bears on the point. He wrote:—"I have kept fowls in orchards, and found no ill-effects from their eating apples, except when they are ripe. Birds are then apt to gorge on them, especially in warm dry weather; but even then if the apples are picked up and not allowed to remain too long on the ground, any ill-effects are more than balanced by the advantages derived from keeping the birds in orchards."

(*e*) "Grease banding," without the use of paper. Respecting this point I think one would be wise to ascertain from the makers of the brand of grease they propose to use; whether it is harmful to the bark of trees when applied direct. I firmly believe the poultry-keeper will not find grease banding a necessity; and, should it be required, then with half standard trees the bands would easily be put out of reach of the birds.

I have dealt with five of the chief points, so I will conclude my comments with these: If others occur to readers, then send along your queries.

SUSSEX POULTRY CLUB.

A committee meeting was held at 3, Vincent Square, S.W.1, on Wednesday, 16th April, at 12 o'clock

There were present: Mr. James Russel (President) in the chair), Messrs. Falkenstein, Cree, Amey, Grant, Watson, Robinson, Rev. H. Mayall (Secretary).

Apologies were received from: Messrs. Sharpe, Ashburnham, Goode.

The minutes of the last meeting were read, confirmed, and signed.

Year Book.—The Year Book has now been published and is being sent to all the members of the Club, and will be on sale at the British Poultry Industry Exhibit at Wembley.

Shows.—The question of various shows, including the Dairy, Birmingham, and Crystal Palace was discussed, and the usual specials granted.

South African Club.—A letter was read from the Secretary of the South African Sussex Club, to which the Secretary had replied, promising the Club support for its championship show in June. It was arranged to give medals for three varieties—Lights, Reds and Speckleds, as an encouragement to South African fanciers.

Red Sussex Club.—The question of the Red Sussex Club was discussed.

The following were elected new members:—Miss Edith Marsden, Bridge House, Chatburn, Clitheroe; Mrs. M. Marrs, Dijlah, Serpentine Road, Colombo; W. H. Brady, Esq., Glan-y-coed, Penmaenmaewr, N. Wales.

HAROLD MAYALL, Secretary.
3, Vincent Square, S.W.1.

CANADIAN RECORD OF PERFORMANCE SCHEME.

The debate on the President of the National Poultry Council's resolution that the Ministry of Agriculture be recommended to adopt a scheme similar to that of the Canadian Department of Agriculture for "Records of Performance" in egg production was, I thought, rather disappointing.

Mr. Rhoades explained the scheme very lucidly, but we never succeeded in getting away from the idea that its main object was to eliminate the rogue. Mr. Stanley Street-Porter urged the necessity of its adoption as a means of protection for both the breeder and buyer. After all, this would come about automatically, as any mal-practice would speedily be reported, and the certificate could be withdrawn.

I think there was too much expectation of immediate results, whereas it is probable for the first four or five years there will be nothing tangible. A great many of the breeders of high repute would be drawn into the scheme, and this would result in the public sending their orders to those whose stock has been inspected and registered. If there were any actual cause for complaint this would be investigated, and as mentioned above, the certificate withdrawn. It would not under these circumstances be difficult to bring in reputable breeders on whom the public could rely. It has been urged that we have the means at our command in the Laying Tests without setting up any new scheme of Inspection and Registration. With this view it is impossible to agree. An entry of four, five, or six birds in a Laying Test is by no means the criterion of a man's stock—far from it. What he usually sends there are selected birds, and to be perfectly candid the selection is, in very many cases, far from being an advertisement for his stock, whatever records they may show in the Test itself, and in many other cases are far above the average stock on the farm. This would be overcome by adopting the scheme proposed by the President of the N.P.C., because the inspector has not only to deal with the stock from the point of view of its handling as a potential layer, but with due regard to its being typical of the breed and possessing health and vitality.

All the inspectors in the Canadian scheme must be fully qualified, and are required to pass a severe Civil Service Examination. Below I give some details of the rules governing inspection, which were kindly given me by Mr. Rhoades:—

ENTRIES.

1. Only pure-bred stock of standard varieties and free from standard disqualifications may be entered. Entries will only be accepted tentatively pending the first report of inspection.

2. If, upon the first inspection, the birds are found to be diseased, the houses or equipment not in good sanitary condition, of the trap-nests not of satisfactory design and in serviceable working order, the entry may be refused.

3. The minimum entry shall not be less than ten birds from any one flock, and all birds entered shall be identified by sealed and numbered bands, which will be provided and put on by officers of the Live Stock Branch.

4. In the event of any entry being cancelled because of attempted fraud on the part of the entrant, or failure to observe the rules, or in the event of certificates not being issued for the above reasons, the Live Stock Commissioner may refuse to accept entries from the same breeder for a period of two (2) years thereafter.

5. All stock entered shall be trap-nested on the owner's premises during the period of the official test, which in no case will exceed fifty-two consecutive weeks for each bird. (See Rule 6).

6. Records may commence from the date a bird lays her first egg in the trap-nest on or after August 1, and on or before December 31, providing the requirements of entry have been complied with. (See Rule 1). In the event of a bird commencing to lay after January 1, the record period shall date from January 1.

7. Only eggs actually found in trap-nests shall be counted, and the entrant shall record, or cause to be recorded, each egg as laid, and shall keep posted in the house in which the birds are kept, for the information of inspectors and others, a record of same.

8. Entrants shall use prescribed record forms which may be obtained upon request from the Poultry Division, Live Stock Branch, Ottawa.

9. The original of the weekly house record shall be signed and mailed regularly at the end of each week by the entrant, to the Poultry Division, Live Stock Branch, Ottawa.

10. If, after the first notification, a breeder fails to send in reports consistently after the first report has been sent in, it may be considered just cause for cancellation of his entry.

INSPECTION.

11. All flocks will be placed under unannounced inspection. Official visits may be at irregular intervals.

12. All equipment on inspected plants shall be kept in a clean and sanitary condition.

13. In the event of any outbreak of contagious disease upon a poultry plant, inspection may be discontinued.

14. The Inspector shall have sole charge of the trap-nests and eggs during all inspections.

15. In the event of the trap-nests not working satisfactorily during an inspection, the owner, upon request by the inspector, shall put them in a satisfactory working condition before the inspection is concluded.

16. Failure to comply with any of the above rules shall be sufficient ground for cancellation of the entry.

17. The receipt by an entrant of written notice that official inspection is being discontinued shall constitute notice of the cancellation of entries in the record of performance.

18. The fullest information shall be given to official inspectors and any entrant who offers opposition renders his entry liable to cancellation.

19. The owner may, upon written notice to the Live Stock Commissioner, withdraw all or part of his entry at any time.

20. At the end of the record period a statement of the complete record will be returned to the owner, and the owner required to take an affidavit that the weekly statements sent in and thereby recorded in annual form is a true and correct statement of the actual number of eggs laid by the individual bird or birds referred to in the statement. Failure to send in this affidavit before January 15 of the succeeding year shall render the breeder liable to forfeiture of the right to receive certificates.

CERTIFICATES.

21. The Record of Performance "A" Certificates may be issued for all birds, not otherwise disqualified, that in fifty-two (52) consecutive weeks lay one hundred and fifty (150) eggs, and Record of Performance "A" Advanced Certificates, for those birds not otherwise disqualified, which lay two hundred and twenty-five (225) eggs in fifty-two (52) consecutive weeks, providing in both cases the quality of the eggs is not lower than that of the grade "Specials" in the " Canadian Standard of "Eggs," and they average at least two ounces in weight.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

" BODIES " for post-mortem examination should be sent to Capt. H. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

L. R. S. (Tottenham). The bird is suffering from what is known as sour crop. This is due to digestive trouble, and may probably be traced to the house scraps, either to some particular ingredient in them, or to the manner in which you prepared them, if they are so fed as to be in a " sloppy " condition. This would cause the condition you describe, as the result would be digestive trouble. Hold the bird head downwards, and gently knead the crop, forcing the contents out through the mouth. When you have done that give her the following: Carbonate of soda, one teaspoonful dissolved in eight teaspoonsfuls of water; give her two teaspoonfuls of this twice daily, and feed sparingly. (2) I think you are trying to keep too many birds in such a confined space. It would be far wiser to keep them all on the intensive system. These very small earth runs are not of the slightest value.

N. D. D. (E. Yorks). I don't quite understand you. As far as I can make out you want to know if the exhibition Wyandotte pullets comply with Major Hurst's standard. If that is so, they do not, because as they did not begin to lay until they were 10 months old, they failed in the first factor E, denoting early sexual maturity. This latter Hurst ranged from 134-401 days, with the dividing line between early and late at 270 days, which, personally, I think is too late. I can't say whether these pullets would be worth breeding from for egg production. Let us know more about them in September. If they prove very broody you had better scrap them, as broodiness is dominant to non-broodiness. You do not appear to have understood Hurst's paper. If you will pardon my saying so, I cannot see that he anywhere suggested the crossing of dominants and recessives. That would only lead to further complications, and that was not his object. We are publishing some articles by Capt. Heseltine on the subject shortly, which will perhaps help you.

R. E. (Todmorden). Prolapsus may arise from different causes. It is very often found with prolific layers at this season of the year, and is one of the penalties of breeding for heavy production. In your case, however, I think it is entirely due to the excessive use of animal food, combined with so-called " tonic," which is nothing but a very common spice mixture, containing fenugreek, ginger, locust bean meal, aniseed, cayenne and gentian, with a little carbonate of iron. As your birds are on free range cut out the meat meal altogether for the time being. They will find all they want in insect life. Stop the spice. Healthy birds are not in need of a tonic, especially if they have free range, and unhealthy ones should be buried. I am not surprised that your hatching has been so poor if you feed in this fashion. (2) The incubator you name is a very good one, and I do not think you could have a better, but the stable hardly appears to be a suitable place to run it in. The variations in temperature would be too great.

Sutton (Surrey). I can't say definitely, but it appears probable that the hen died from shock owing to the application of the crude paraffin to the thighs. When you were treating her for scaly legs it is far better to use equal parts linseed oil and paraffin. There is no danger in this. (2) From your description I think the pullets are the result of a cross between a Buff Orpington cockerel and White Wyandotte hens. They should be good layers, but rather broody. (3) Reduce the biscuit meal to one part and add another part middlings. The ground oats are of fair average quality.

E. B. (N. Wales). There are only two points here. Most of the embryos died at a very early stage of incubation. None had reached the tenth day. It is a question of temperature or the stock birds. I am inclined to think the latter. Are they in an overfat condition? That is conducive to weak fertility and weak germs. It hardly seems possible that the temperature would cause the results to be so bad as this. (2) If you mate the hens now with a Brown Leghorn cockerel you will get no pure Wyandottes. They will all be cross-breds; the "taint" of the Wyandotte male will not have any influence. If you mate them to a Wyandotte male next season the progeny will be pure Wyandottes, and there will be no " taint " of the cross.

Henwife (Ireland). The age at which males can be detected from females depends a great deal on the breed. With the sex-linked crosses the sex can be detected at hatching. With the light breeds you should have no difficulty in distinguishing sex at six weeks' old. Experienced breeders would be able to do so earlier. The cockerels are more scantily feathered than the pullets. The comb and wattles are more developed; they are higher on the leg, and with Leghorns the leg colour is generally a deeper yellow, and the hock joint is thicker. The lobes are more distinct. These general characteristics apply to all breeds, except, of course, as regards colour of leg. With Wyandottes and the heavy breeds it is not so easy to decide at such an early age. (2) I do not think it profitable to kill the cockerels off as soon as you can detect the sex. You should get some return for them, either as poussins or when they are about ten weeks old. As a rule people run their Leghorn cockerels too long.

Blues (Dorset). You must not blame the breeder for selling you cross-breds, because such a high percentage of your Wyandottes have come with single combs. They may be, and I suspect are, pure-bred, but many strains of Wyandottes carry the single comb factor, and I do not know that it is less in evidence with exhibitors than with utility breeders. That is not quite correct, perhaps. It is less in *evidence*, but not less common. Your friend was correct when he told you that if you mated these single comb pullets to a pure rose comb, all the progeny would come rose comb, but he was wrong when he said you would have no further trouble, as all of them would not be pure rose comb. The only way to rid yourself of the trouble is by the breeding test. If you mate the single comb pullets to a rose comb cockerel, and all the progeny had rose combs you would know the cockerel was pure for rose comb. If you mate the rose comb hens to a single comb cockerel all the progeny of the pure rose comb hens would be rose comb. All those which were "impure," i.e., carried the single comb factor, would throw both rose and single combs. These you have to discard.

H. G. McG. (Beaufort). I am afraid this is a matter in which I cannot help you. You say the crop goes very yellow and rather flabby, and the birds do not pick up their food with any relish; and, again, the crop goes very flabby and then dark at the end; and, again, they lose their appetite. Do you mean the crop or the comb? If you could send me particulars of your feeding, or some details, I might possibly be able to help you. With regard to gleet. It cannot be detected before the cloaca is affected, because it is an inflammatory disease of the vent and cloaca of fowls. It is really an infectious venereal disease, and its cause has not yet been determined. I do not know any means by which you could prevent it, except by isolation of the affected birds. Treatment is hardly worth while, as it is very resistant to treatment. The male should be removed from the flock if the disease is present. These are the only means by which you can prevent it, and by killing all affected birds. I do not think you can beat the Sussex, any variety, as a good table fowl. We cannot give you the names of breeders through these columns. Replies by post are only permissible to members of the S.P.B.A., without a fee of 2s. 6d. is paid.

P. P. (Willenhall). The sample of mash you send at 16s. cwt. is of excellent quality, and should give you very good results. I do not think you could do better than use it, and unless you could buy in fairly large quantities you could not make it so cheaply.

V. W. X. (Hants). The sample 1 of alfalfa meal contains a tremendous amount of stalk, and for that reason I should not recommend it. Sample 2 is dusty and badly harvested. I much prefer No. 3, to which you allude. I know this well, and it is much the best value. I cannot express an opinion on a proprietary article in these columns. Personally I have never used it.

W. L. L. (Suffolk) Except that I should like to see a better sample of middlings, all the others you send are of good quality, particularly the Sussex Ground Oats, which are excellent value at 15s. 6d. cwt. All the formulas given are by weight, except when otherwise stated.

A. B. (Beckwithshaw). If the birds are to be run in one flock, and you do not intend to have alternate runs, you could not run more than 100 birds on this piece of ground, but with alternate runs you could keep up to 200. We are sending you particulars of the S.P.B.A. under separate cover.

POST-MORTEMS.

B. D. T. This was a very acute case of intestinal tuberculosis. If you could have seen the inside you would have marvelled at the fowl being able to perch the night before death, but birds will carry fatal lesions and not show signs of illness except to the experienced observer.

——— The Barnvelder pullet had invagination of the rectum. There was strangulated hernia further inside. The bowel was presumably thrown into spasm by indigestion, and this was the result. Stones, and what looked like rubble and plaster, had passed into the gut. It is very rare in fowls, but not infrequent in quadrupeds.

K. B., Andover. The uterus was ruptured and the contents loose in the abdomen.

B. R. H. There was not a B.W.D. case among them. They were all "pneumonias."

R. F. T. The R.I.R. pullet had produced too fast, and yolks had been spilled into the peritoneal cavity. It was a case of collapse.

F. H. R., Bamston. Apoplexy was the trouble in this hen. There may be, as you suggest, an inherited tendency. The short lives of fowls and sheltered conditions do not lend themselves to those structural changes in the vessels known as arterio-sclerosis.

except in cocks, and they are endowed with proportionally larger hearts than hens, and much subject to dilatation and other circulatory troubles which may be regarded as temperamental, often resulting from excessive strain which fighting puts upon them. The winner of a battle is the one with the best heart, literally.

E. M. L. Infectious pneumonia.

L. B., Bristol. This hen had a heart that was atrophied to the size of a three weeks' chick, and she was everywhere loaded with internal fat, but it was peritonitis that finished her, as the yolks could not get passage, were crushed, and their contents free in the abdomen. Those kept under like conditions should be fasted for 24 hours, and given a daily dose of salts at the rate of a heaped-up teaspoonful to each half-dozen birds. If you thus lower the tension you may prevent further loss.

A. H. B. The hen was much emaciated through diabetes. All the chicks had pneumonia; no sign of B.W.D. The proportion of meat is large, but the causes of diabetes in fowls is not known. This hen had a wasted pancreas truly, but then it was only consistent with the condition of the other structures.

D. M. N. There was no specific disease, such as B.W.D., or infectious pneumonia, but all had failed to develop and digest. The livers varied from chrome yellow to cherry red, and the yolks were in none absorbed, but either dropsical and impingeing on the organs of the chest, or hardened and acting as foreign bodies, provoking peritonitis.

J. H. Peritonitis was the cause. The oviduct was ruptured and loose egg material flooded the peritoneal cavity.

Someone Who Cannot Write. The impossibility of deciphering your signature imposes unnecessary trouble on all who handle the letter. You may recognise your case perhaps as "Pet," since you refer to the bird as such. She was full of dropsical fluid, and had acute mesenteric disease. The abdominal fat was an inch and a half in thickness. Poor pet!

———. Straining to pass a large egg resulted in rupture of a blood vessel and haemorrhage inside. Quite one of the casualties one must expect occasionally, and with no one to blame.

C. D. This hen had jaundice, caused by degeneration of the liver. Half a grain of calomel, and on six subsequent days, fifteen grains of sulphate of magnesium in the morning feed.

"Ulster." Pulmonary apoplexy was the cause in this bird.

J. O. The chick had infectious pneumonia.

J. M. T. Pneumonia of the sporadic or accidental variety, not the specific infectious form.

R. F. E. No, it was not "constipation" in the usual acceptation of the term, but sealing up of the vent by dried off slimey evacuations, which resulted in mechanical closing and accumulation of waste products in the bowel behind. If this chick had had the parts soaked, and the mass got away, and some vaseline or other simple ointment freely applied, it would have recovered.

C. H. Major. These chicks had pneumonia of the kind one looks for as the result of chill. There was other evidence in patches of peritonitis at the parts most in contact with the earth (through the abdominal floor). The losses suggest infection, but I do not find it.

H. LEENEY.

EAST ANGLIAN EGG LAYING TEST, 1923-24.

(OPEN TO GREAT BRITAIN).

The following are the leading pens at the end of the sixth month of the above test, which is organised by the North Essex Branch of the N.U.P.S. :—

SECTION I.—WHITE LEGHORN.

Pos.	Owner of Pen.	Eggs sixth month.	Eggs to date.	Score value.
1.	Dale Egg Farm	97	387	336
2.	W. Crabtree	81	303	302
3.	Birm. I. Co-oper. Society, Ltd.	69	346	300

SECTION II.—ANY OTHER NON-SITTING BREED.

Pos.	Owner of Pen and Breed.	Eggs sixth month.	Eggs to date.	Score value.
1.	Miss E. Cavanagh (Ancona) ...	103	283	278
2.	R. Lloyd-George (Ancona) ...	84	280	272
3.	Misses D. and M. Keech (An.)	82	232	229

SECTION III.—WHITE WYANDOTTE.

Pos.	Owner of Pen.	Eggs sixth month.	Eggs to date.	Score value.
1.	S. and T. Greenall	119	480	355
2.	E. Rodger	81	398	354
3.	A. Gawthropp	97	374	345

SECTION IV.—RHODE ISLAND REDS.

Pos.	Owner of Pen.	Eggs sixth month.	Eggs to date.	Score value.
1.	Stewart and Allen	100	327	327
2.	H. Turner	106	390	307
3.	A. Gawthropp	96	284	261

SECTION V.—ANY OTHER SITTING BREED.

Pos.	Owner of Pen and Breed.	Eggs sixth month.	Eggs to date.	Score value.
1.	F. S. Montgomerie (B.R.) ...	116	354	354
2.	Thornlea P.F. (L.S.)	91	362	336
3.	Tom Green (L.S.)	88	318	317

SECTION VI.—ANY VARIETY LIGHT BREED (Amateur).

Pos.	Owner of Pen and Breed.	Eggs sixth month.	Eggs to date.	Score value.
1.	T. H. Aitchison (W.L.) ...	15	86	71
2.	H. Farrand (W.L.)	38	138	60
3.	G. J. Coverly (W.L.)	35	58	51

SECTION VII.—ANY VARIETY HEAVY BREED (Amateur).

Pos.	Owner of Pen and Breed.	Eggs sixth month.	Eggs to date.	Score value.
1.	Mrs. W. F. Atkins (R.I.R.) ...	34	198	198
2.	Mrs. W. F. Atkins (W.W.) ...	14	122	122
3.	G. Shenton (W.W.)	15	115	115

Note.—Five pullets in Section I. to V., and two pullets in Sections VI. and VII. comprise a pen.

W. T. WILLIAMS, Hon. Sec.

Millfields, Rayne, Essex.

DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION FOR IRELAND.

EGG LAYING TEST, 1923-24.

The following are the results of the period from 16th October, 1923, to 31st March, 1924:—

HENS.—SECTION I. (NON-SITTERS).

Pos.	Owner and Breed.	Eggs laid.	lbs.	ozs.
1.	Mrs. L'Estrange (W.L.)	615	80	14
2.	J. Mount (W.L.)	642	82	1
3.	Mr. T. J. Maguire (W.L.)	637	84	14
4.	Mr. A. J. MacGillicuddy (W.L.) ...	613	77	6
5.	Mrs. Coubrough (W.L.)	565	75	4
6.	Lady Dunleath (W.L.)	542	68	6

SECTION II. (WHITE WYANDOTTES).

Pos.	Owner and Breed.	Eggs laid.	lbs	ozs.
1.	Mrs. Strong (W.W.)	728	94	8
2.	J. Mount (W.W.)	741	94	0
3.	Mrs. Chearnaley (W.W.)	728	93	13
4.	Mrs. Harvey (W.W.)	711	88	7
5.	Lady Dunleath (W.W.)	664	87	9
6.	Mrs. James (W.W.)	678	84	10

SECTION III.—HEAVY BREEDS (other than White Wyandotte).

Pos.	Owner and Breed.	Eggs laid.	lbs.	ozs.
1.	Miss Grehan (R.I.R.)	649	89	10
2.	Miss Cavanagh (B.Orp.)	658	82	11
3.	Mrs. M. Barnes Westland (R.I.R.) .	614	76	10
4.	Miss Cavanagh (R.I.R.)	618	80	3
5.	Mrs. M. Barnes Westland (A.B.O.) .	594	74	6
6.	Mrs. Marshall (R.I.R.)	564	72	6

DUCK COMPETITION. (Four Ducks to each Pen).

Pos.	Owner and Breed.	Eggs laid.	lbs.	ozs.
1.	Mrs. Tallent (F. and W.R.)	593	93	12
2.	Lady E. Poer O'Shee (F. and W.R.)	450	72	5
3.	Miss Somerville (F. and W.R.) ...	381	61	0
4.	Miss M. Dundon (F. and W.R.) ...	388	66	14
5.	Mrs. Cruite (F. and W.R.)	324	50	6
6.	Miss E. Cavanagh (F. and W.R.) ...	309	47	7

POST YOUR COPY EARLY

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Correspondence.

LEG WEAKNESS.

To the Editor of "Eggs."

Dear Mr. Newman,—Seeing the various letters that are appearing *re* Leg Weakness, and your article this week, prompts me to send you particulars of a case that came under my notice a few weeks ago. A friend of mine who had never reared any chicks by artificial means before, had some chicks in a home-made brooder with an ordinary hurricane lamp and a piece of iron on the inside lid of the brooder for deflecting the heat on to the chicks. After a fortnight the chicks were walking on their hocks with toes all twisted, and would tumble over if they happened to come against any lumps of dirt or turf. There was also no inclination to come out of the brooder. Circumstances arose which claimed his attention for weeks, and he found he could not possibly give the necessary care to the chicks, so with a feeling of "don't care what happens," he took the lamp out of the brooder, forced the chicks outside for an hour or so, and left them to find for themselves. The only attention they got was early in the morning and late at night, he himself being away all day till six o'clock or after, and no one else available to do anything for them. At the present time those chicks have not the least sign of leg weakness, and are growing fast, and when the owner goes to feed them in the evening they come flying along to meet him as healthy chicks should do.

This case would appear to indicate that what you suggest in your article is correct. The brooder is the place we must pay attention to, while not overlooking the necessity of suitable food.

Yours faithfully,

J. TURNER.

REARING TURKEYS ON DRY MASH.

To the Editor of "Eggs."

Dear Sir,—Seeing a question asked by your correspondent, A. R. Boston, enquiring as to the possibility of rearing turkeys on dry mash, perhaps your readers will be interested in our experience last season. Seventy eggs from pedigree Mammoth Bronze Turkeys were put in an incubator, and hatched about the third week in April. From these we had 53 healthy chicks, which were put in a 6ft. x 9ft. brooder house, in which was a 100-chick Glevum Portable Hover. These were entirely reared on dry mash consisting of: Two parts middlings, one ground oats, one bran, a little limestone grit, mixed with one part cake meal. The cake meal mentioned could be replaced by maize or wheat germ. We used Bates' Cake Meal, an American product, not always obtainable.

When the turkeys were small a good supply of chopped green stuff was also mixed with the mash, also some cracked wheat was sprinkled in the chaff on the brooder house floor, and some cracked maize added when the turkeys were about five weeks old. Also at about that age they were given curds. I was rearing these turkeys for a turkey breeder, and he took them at about ten weeks old. There were then 45 birds out of the 53 hatched, and were exceptionally healthy and well grown.

I consider this the best way to rear turkeys, but they should be well looked after, and the middlings, etc., should be of the best.

Yours faithfully,

ARTHUR BARKER.

MOISTURE IN INCUBATORS.

To the Editor of "Eggs."

Dear Sir,—May I ask you to spare me a small portion of your valuable paper, re the moisture problem in incubators.

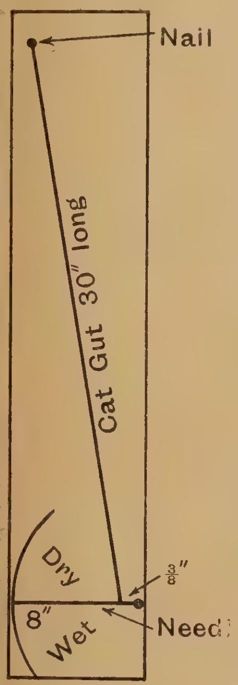
I see in last week's issue Mr. Philcox says he studies and works in conjunction with the readings of his weather-glass, but may I ask, does it register the amount of moisture in the atmosphere. I think it only weighs it. We can have quite a moist atmosphere and yet a high reading.

I find the most reliable method is to use a piece of catgut, obtained from any fishing appliance shop. I fasten one end to a nail at one end of a board, and the other to the needle, about ⅜in. from the needle axle. Its action is very simple, as will be seen by the sketch. The board should hang up on the wall in the room to permit the air to play round the gut.

In making it, care should be taken that the needle works freely, and the thread of gut is quite clear of the board. The needle must be just heavy enough to keep the gut tight.

Yours faithfully,

F. FLOWERS.



MARKING OF THE EGG.

To the Editor of "Eggs."

Dear Sir,—I have read a great deal about co-operation in the marketing of our produce being a means of fighting the foreigner, but it seems an enormous undertaking that will take time. I am writing to suggest another method, which, I think, will increase the reputation of our English eggs, and that is the use of a special egg-stamp with a registered trade mark, by all those who guarantee their eggs to be absolutely clean, fresh and of good size, and are willing to sign a form to this effect. The stamp could be sold by the various approved societies to their members who conform to these conditions, and the name of the individual user could be also inserted in the stamp, so that unsatisfactory eggs could be traced. Each user of these stamps could contribute to an "Advertisement Fund," which would be used for booming this special trade mark in the Daily Press, and drawing the housewife's attention to the nutritive value of the egg, as compared with other articles of diet, and could also give the addresses of the societies from which, on payment of a small fee, particulars could be obtained by the retailers as to the various poultry farms whence these guaranteed eggs could be obtained. It seems to me that between the marked imported eggs, and the marked guaranteed English eggs, the farmer who market his eggs in an inferior condition would be shown up, and have to mend his ways or go out of business.

Hoping there is something in my suggestion, I will sign myself, if you please,

Yours truly,

"PROGRESS."

MARSH DAISIES.

To the Editor of "Eggs."

Dear Sir,—I have had many applications for our Year Book from members who found my address in the Register of Members. Many of your readers are, however, not yet members of the S.P.B.A., and I should be grateful if you could insert a note that I shall be pleased to send anyone interested a Year Book if they will write me a card to : Old Mill House, Partridge Green.

I should like to add that the question of Sex-linked Inheritance within the breed is being very carefully tested by eminent experts. If their view confirms ours, I think you will agree we have something unique in the Poultry World.

Your obedient servant,

FRANCIS HEMELRYK,

Vice-President, Marsh Daisy Club.

LEG-WEAKNESS.

To the Editor of "Eggs."

Dear Sir,—The numerous references in "Eggs" to leg-weakness among young chicks are of great interest. My Leghorn chicks have been reared under Anthracite stoves in lots of about 200 for the last three years, and when about 10 days' old signs of this trouble begin to appear. I have lost as many as 30 or 40 out of one flock. Have tried many so-called remedies—milk, oil of tar, cod liver oil, scrupulous cleanliness, fresh earth placed round the stove every day, tins of water under the hover—but none of these experiments have had any apparent effect. This year the trouble began as usual among a first hatch of 170 chicks. After losing about a dozen the position was four off their legs and six or seven staggering about. Having some old poultry-house shutters made of 1¼ inch quartering and spondite, I burnt off the spondite solution—first soaking it in paraffin—which left a frame of fine wire mesh. Placing these frames round the stoves and covering them with straw allowed a strata of warm air under the chicks when they were at rest. My troubles appear to have vanished. In a short time all the birds recovered with the exception of the three worst cases. Have had no further cases of deaths for a week, and the chicks are in fine condition. I must thank "Eggs" for this idea. Possibly this experience might be useful to other readers of "Eggs."

Yours faithfully,

S. H. ELLERBY.

THE WORLD'S POULTRY CONGRESS.

We are all now eagerly looking forward to our visit to Spain. The World's Poultry Congress promises to be a very great success. Poultry-keepers from all parts of the world are coming, so that it should be wholly represented. I believe I am right in saying that the British members will number between 50 and 60. We leave Victoria on Wednesday, May 7th, at 10 a.m., and should have a very enjoyable trip.

The members of the S.P.B.A. Council, who are going are: Mr. P. Hedworth Foulkes, Mr. E. J. Meekings, Mr. J. H. Dowden, and myself. We expect to be absent about a fortnight.

Will members and readers kindly forgive any delay which may arise in answering letters during my absence. They will be dealt with, as far as possible, from this office, but those needing my personal attention will, I am afraid, have to wait until my return.

SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

THE CHELTENHAM BRANCH.

The Cheltenham Branch paid a visit to the Shurdington Poultry Farm, by the kind invitation of F. A. Welsh, Esq., on Saturday afternoon, April 12th. The weather was very unsettled, and the party, which consisted of between 20 and 30, encountered several heavy hailstorms. However, the farm was inspected between the showers, and it was surprising to see how the young stock were able to resist the elements, which went to show the stamina of the parents.

The farm is compact and well laid out; laying and breeding pens on the avenue system, chickens are run in the orchard, which is kept for chick rearing. Strong healthy birds were runnning about of all ages from January hatched of the following breeds: R.I.R., Light Sussex, W. Leghorn, Black Leghorn, Buff Leghorn, and White Wyandottes. Hatchability and fertility had been very good. The chicks were reared under the small unit system, which appeared to be very satisfactory. The adult stock were in excellent condition, and some typical birds were seen of each breed. Some of the highest trap-nest record birds were handled by those present, and the points of a good layer described.

After completing the tour of the farm, the party was invited to a very enjoyable tea by Mrs. Welsh.

During tea the usual poultry farmers' discussion on poultry matters generally took place. Afterwards Mr. Welsh conducted the party to the incubator rooms, which were fitted throughout with Gloucester and Murray Linder's incubators, and on concrete floors, which proved very satisfactory. We then had a judging competition of several birds penned for the purpose, which was very interesting, Mr. L. G. Price, the County Instructor in Poultry Keeping, demonstrating the advantages of handling, and answering the many questions put to him.

A very hearty vote of thanks to Mr. and Mrs. Welsh was proposed by the President, Mr. E. Bacon, of Arle Poultry Farm, and seconded by Mr. G. H. Hollingsworth, the County Agricultural Organiser.

M. A. GREENWAY,

Hon. Sec., Gloucester Branch.

BOUND VOLUMES OF "EGGS."

We are constantly asked whether bound volumes of "Eggs" are procurable, and in answer may I say that these are always procurable from our publishers. Someone wrote to me three or four weeks ago, and stated that a "a bound volume of 'Eggs' was the most complete Poultry Book yet published," as he could always find the information he required in its pages.

POULTRY FARMING IN SOUTH AFRICA.

We have received the following letter from Mr. Gordon Cooper, of Chambrecy, Essexvale, Southern Rhodesia, in answer to a request from Mr. Ashenden for information as to Poultry Farming in South Africa, which recently appeared in these columns:—

> "Poultry farming is profitable out here if run by the right person.
>
> Before starting local conditions should be studied for, say, six months, before land is taken up.
>
> Good land is comparatively cheap. To a person with knowledge of poultry a capital of £1,000 should get them established. The price of food fluctuates a lot—maize, the chief food, ranging from 4s. 100lbs. to 11s. 100 lbs. (in a drought). Bran about 9s. 100 lbs., Lucerne (Alfalfa) is easily grown, but costs about 4s. 100lbs. green.
>
> Houses are usually made of brick and corrugated iron. Wood gets attacked by ants.
>
> Round big centres, such as Jo'burg, there is a good demand for eating fowls. There are several egg circles which now stabilise prices, and a fair price is to average 1s. 9d. dozen. Food costs run from 5s. to 10s. per bird. Native labour is cheap and plentiful.

There are plenty of openings for pedigree breeders who can charge good prices for stock. The climate is A1, and in Rhodesia the taxation is very light.

Chicks are largely reared in cold brooders. B.W.D. is not present. Chicken-pox is the worst sickness. Cost of living is high in towns, but on a farm one can live very cheaply.

Any further advice, if Mr. Ashenden writes me, I will be pleased to give, or can see him next October, as I will be then in England."

Hatching Duck Eggs.

By OSCAR GRAY,
of the Abacot Duck Ranch.

Though poultry-keepers often find their hatches of duck eggs are less successful than their corresponding hatches of hen eggs, it does not follow that there is really any more difficulty in hatching the one egg than the other. The trouble is that different methods must be employed, and that duck incubation is less understood; our experience with duck eggs is not one-hundredth of our experience with hen eggs. Again, much of the advice tendered in print—and even under official auspices—is offered by those whose experience is inadequate to justify their acting as instructors. I do not profess to have mastered the art of duck incubation, but as the result of considerable experience I find my ideas of the best methods of procedure are gradually crystallising, and their statement may therefore serve a useful purpose.

In artificial incubation I regard it as immaterial whether hot water or hot air machines be employed; what is essential is that (a) the temperature can be maintained at the proper level; (b) effective means are introduced to provide moisture; and (c) additional means of ensuring increased ventilation during the later stages of incubation are available.

The temperatures I have found most satisfactory are 102 deg. (measured when the bulb of the thermometer is 1½ inches above the top of the eggs) during the first week, 103 deg. during the next fortnight, and 104 deg. during the fourth week. Owing to the larger size of duck eggs, the position of the thermometer must be specially adjusted. Careful watch must be kept to prevent the temperature rising at the fifteenth day, when the development of the embryo produces considerable heat.

Moisture, I find, is best introduced by placing two sponges about the size of a man's fist on the egg tray, and keeping them constantly moist. Cheap stable sponges can be purchased for a few pence and are quite suitable. They should be dipped in warm water morning and evening. Their use obviates the necessity for spraying the eggs; when they are not employed the eggs should be well watered on the seventh day, and every morning from the fifteenth day until the first egg pips.

Additional ventilation is needed from the twenty-first day to the end of the hatch. Some makes of machines do not provide additional ventilators, other makes only provide additional ventilators in certain sizes. I have found it inadvisable to use any machine which does not furnish some definite means of introducing additional air at the required period. During the last week large quantities of foul gases are generated which cannot be carried off by such ventilation as is necessary and desirable during the earlier period of incubation. The ducklings will be killed in the shell in large numbers if **special** means are not provided for removing these gases.

Turning is best commenced when the eggs have been in the incubator for sixty hours. Thereafter the eggs should be turned completely over twice at least in each twenty-four hours until the first pipping is heard.

Cooling is very little needed, and can best be judged by feel; no definite rule can be laid down owing to the variations of the external temperature. With large egg trays sufficient cooling is usually given in the operation of turning the eggs. With small trays, where the temperature of the incubator room is about 60 deg., five minutes removal from the machine during the first fortnight and ten minutes thereafter will be sufficient. If the external temperature is 70 deg. or over double these periods may be necessary. If spraying is adopted, first turn the eggs; then spray with warm water with a watering can furnished with a fine rose; then replace immediately, for the evaporation that ensues will effect sufficient cooling.

So soon as pipping is heard stop turning and only open the machine for the purpose of wetting the sponges. So soon as the first egg is cracked through keep the machine shut until the hatch is complete, and do not open it until the first ducklings have been hatched 36 hours, and are therefore ready for removal. Any ducklings which have by then broken through their shell but seem unable to get out can be helped by gently cracking the shell to a slight extent, but this must be done very carefully and only to a limited degree, for ducklings which need more than a very little help will seldom rear, though they may be broken out alive.

Do not feed ducklings until they have been out of the shell for 48 hours, though they should be given a little fine sand to pick up. The egg yolk is drawn into the duckling's body just before he emerges from the shell, and on this he feeds; and if his stomach is loaded with food before the greater part of this yolk is consumed he will die through inability to digest the food taken into his body.

In natural incubation, under ducks or hens, the main special precaution required is the provision of moisture. The nest is best made of hay on a thick lump of turf, which should be thoroughly soaked in water before the eggs are set. The eggs should also be thoroughly wetted with warm water, just before the bird is replaced on the nest, on the seventh, fourteenth, seventeenth, twentieth and twenty-third days. Let the bird do the rest. Do not be afraid of over-wetting the eggs; the nest of the wild duck is often a soggy mass of water and mud, yet she secures a hundred per cent. hatch.

Testing for infertility and broken yolks can be carried out by an expert on the fifth day, as the fine spidery lines which denote vitality can be readily seen owing to the transparent nature of the duck egg shell. The novice had better wait until the seventh day. Infertile whole-yolked eggs which have been kept moist in the incubator, and are removed on the fifth day, are perfectly fresh and indistinguishable from new-laid eggs. All infertile and broken yolks should be removed as soon as detected.

A second test for dead germs should be made on the fifteenth day. The dead embryos will appear blotchy and unevenly coloured, the live ones will show a large dark evenly coloured mass. The best instrument for testing is a powerful electric torch, over the end of which is fitted a short length of wide rubber tube. If this is held against the egg the entire interior will be illuminated and the progress of the embryo readily seen.

After the second test any embryos which die will at once make their presence known by the foul smell they emit, and they can be readily detected. The shell will usually appear blotched and also cold, but the nose furnishes the readiest means of identifying them, and they can be found without submitting all the eggs to a further test and the consequent undesirable cooling. They should be removed immediately, as their continuance in the incubator does irreparable damage.

Both in artificial and natural incubation the quality of the eggs is of the utmost importance. The only eggs which will hatch are those of normal size, of true egg shape, and with perfect, closely-grained shells. A practical experiment will quickly show you how to select hatchable eggs. Place in an incubator a number of eggs of all shapes, sizes and characters, and run the machine in the ordinary way. Preserve all the eggs you remove at the two tests either for infertility or dead germs, and at the end of the fifteen days compare the eggs removed with the live eggs which remain in the machine. You will be at once struck by the regular even size and shape and regular appearance of the live eggs, and by the irregular and entirely different aspect of the useless eggs; you will find all the porous or imperfectly shelled eggs, and all those of abnormal size or abnormal shape have been discarded. Having conducted this experiment once you will never again experience difficulty in determining which eggs you ought to set.

Freshness is also a most important consideration. If kept moist and protected from temperatures below 35 deg. and above 65 deg. duck eggs will keep a considerable time, and will still hatch though not set for three weeks or more; but frost kills the germs, and a temperature of 70 deg. will set up premature incubation. The best results are obtained from eggs set when not more than from seven to ten days old. If stale eggs must be hatched set them under hens and not in a machine. Stale eggs take longer to hatch than fresh eggs. It is therefore desirable to have all the eggs in an incubator as nearly of the same age as possible; otherwise they hatch irregularly with the evil consequences referred to below.

The normal period of incubation of duck eggs is usually stated to be 28 days, but the lighter breeds hatch more quickly than the heavy breeds; and the period of incubation is affected by the incubator temperature, the freshness of the eggs, and the breed. I incline to place the period at 28 days in the case of Runners, 29 days with Khaki-Campbells and Orpingtons, and 30 days with Aylesburys and Magpies. Muscovies take 35 days. It is thus inadvisable to mix the breeds in an incubator. Where the eggs hatch at different dates difficulties arise at hatching time, for when the incubatist opens the machine to take out the first birds he chills the other eggs at a critical period of their life. Again, the foul gases emitted by the early hatchers affect the less-developed embryos.

The season of the year has also an important bearing on the success of your hatch. In my view many failures are brought about by trying to hatch ducks too early in the year. The wild duck mates late. In my experience the best ducks, and those which give the most profitable egg yield, are those hatched between the middle of May and the middle of July. Hatch earlier, if you will, for drakerels to be used during the ensuing season, or for early table ducklings, but not for the egg-laying flock. I regard the 1st April to the 30th June as the normal period for setting duck eggs, and the 15th April to the 15th June as the best period. My five Khaki-Campbells, which made what was then a world's record for winter laying in the 1921-1922 National Laying Test, were hatched in the last week in May. Not one of the birds which won the many successes I gained in the various 1922-1923 Laying Test was hatched before the 15th of May. In the present abnormal season the advantage will be more than ever with the duck-keeper who hatches late. There is a scientific reason for this.

To hatch and rear successfully it is essential the egg should be sufficiently supplied with Vitamin A, and this can only be effectively obtained by the breeding stock from **young growing greenstuff.** In theory it can be supplied by the use of such foods as milk, egg yolk, and cod liver oil. Experiment has convinced me that in practice such methods of replacing the natural sources of supply can never be wholly successful. This year the late starting of the spring growth has deprived the breeding stock of the power to obtain young growing greenstuff, and consequently limited the supply of Vitamin A and reduced the hatchability even of fertile eggs and the stamina of the ducklings hatched; while the cold weather has restricted the activities of the drakes and reduced fertility. The eggs from which I expect to produce my own main supply of young ducks are not yet laid. They will be laid a week after the spring growth of vegetation has made good progress. As soon as that date arrives duck-keepers should set every egg they can secure so as to make up for lost time.

DISEASES OF POULTRY.

By Capt. LEENEY, M.R.C.V.S., M.S.A., A.P.S.

GAPES.

Without other means of knowing the date, the class of cases arriving for post-mortem examination would indicate it approximately, and of this we are reminded by the arrival during April of the first subjects of gapes. What progress, if any, has been made since last season in combating this parasitic disease? I do not find any advance in the published bulletins of the various American States to whom we look so largely for any improvement in our methods. The very practical as well as scientific men at the head of the various Bureaux of Agriculture in U.S.A. and in Canada have shown us that we need not despair of treatment of the coccidiosis of turkeys (which there is reason to think they sent us in the first place), and may yet provide a remedy against gapes that can be mixed with food and not require individual operation, which is impracticable where large numbers are concerned.

As to our own Ministry of Agriculture, we can look for little help, in the case of a Department overloaded with work and understaffed, and at present distracted with the care of foot and mouth disease. As one with fifty years recollection of their "form," I cannot but say of their poultry investigations that they would not when they could, and could not when they would.

We may at the present time describe the cause and methods of propagation of the disease known as gapes and repeat the advice given by those best informed on the subject, for we still find many readers quite ignorant of the cause, or how to minimise it. Members sent three cases last week, and had not suspected what was the matter. In these, as in the majority that early prove fatal, the obstruction is very low down, and the sufferers do not behave in the usual way, but of this later.

The cause of gapes is the presence of a worm in the air passage. It is of the class of strongles, or strongyles, which are the most pernicious of any, whether causing gapes in birds, husk in calves and lambs, or wasting and anaemia in young horse stock, and recognised as the little red worm, strongylus tetracanthus. It is not the size of the worm that constitutes its danger, but its blood-sucking proclivities wherever found, but in the case of those whose habitat is the air passages it has the secondary and most fatal effect in blocking the lumen of the windpipe; or, in quadrupeds, the bronchi, giving rise to verminous bronchitis; or, when inhabiting the intestines of the horse, making myriads of punctures, sucking the blood, and wandering into other tissues. One of the horse strongles (S. armatus) bores through the tissues and forms so-called "nests" or colonies at the juncture of blood vessels. This is a digression which will be pardoned because it is desirable to know how so much damage can be caused by parasites which are so small themselves.

The gape worm is more generally recognised by helminthologists as the Syngamus trachealis. The nomenclature is not important, there is no mistake as to its conduct.

The worms are generally found in pairs, but the male is so much smaller than the female that the couples resemble a miniature forked twig when once they have copulated. They remain permanently attached, and the female is said to ultimately burst with eggs, after which the male attaches himself to another female. Some observers say that the complete cycle of life can be and is completed within the infested host, but all agree that the major portion are expelled by the coughing of the victim, and remain as embryos on the ground, awaiting a host. These can be picked up on food. Chicks may be observed picking up the worms, and thus unknowingly infesting themselves. If, then, the life habits of the worm are such as we have briefly outlined, it will be understood how impossible it will be for chicken raised on infested land to wholly escape. The difficulty of eradication will also be realised, but the importance of arresting the plague at its source will also be recognised.

From time immemorial men have always been more interested in trying to cure disease than to prevent it, and all down the long centuries the mistake has been fostered by persons interested in the sale of "cures," but who find no profit in preaching prevention.

The symptoms are well nigh unmistakable, as the bird leans forward and extends the head and opens the mouth, retracting the head and neck more quickly and at rhythmic intervals unless interrupted. The malady acquired its popular name by this action.

TREATMENT.—The situation of the worms in the windpipe, and more frequently where it enters the chest, makes it very difficult to bring any sort of vermifuge into contact with them. Remedies given by the mouth do not go down the same lane, but by way of the gullet, so that any benefit which they confer on the sufferer must be through the circulation of the blood, and to the excessive dilution of the drug aimed at the parasites. There are, however, certain benefits to be derived whether in quarupeds with husk or chicken with gapes through the rapid volatilisation of such remedies as terebene and chloroform. When exhaled from the lungs the vapour passes over the region and sickens the worms, perhaps sterilises them, possibly leads to their being coughed up by an extra spasm. Again, there are deft-handed persons who have succeeded with a fine feather stripped to the quill, in passing it through the opening into the larynx and bringing its turpentine-dipped end into contact with the enemy. Soft wire has also been employed with some measure of success, but such treatment can only apply where a specially valuable individual is to be saved, and there are few folks with the manipulative skill to carry it out. Camphor in the drinking water was formerly much esteemed as a medicine, and by its volatility may have some value. There are many advertised "cures," but of these I have nothing to say. They stand or fall on their merits in use.

Our efforts should be aimed at prevention, but how can we contend against the embryos in the soil or on pasture plants if we run chicken at the rate of 500 to the acre on ground where gapes was present in the previous season? The worms at all stages are very susceptible to salt. So are young chicken. A very little poisons them. The land may, however, be dressed heavily with salt, and soot, and lime, if the flock is kept off it, and if the dressing is applied in both spring and autumn in anticipation of showers, and well rolled, there will not be more than a breeding remnant left. "Eternal vigilance is the price of Empire," we are told. It certainly is the price of chicken.

SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

APPLICANTS FOR MEMBERSHIP.

Gutteridge, Mrs. C., "Sherbrooke," Whaley's Lane, Thingwall, Cheshire.
Fisher, John, 102, Keighley Road, Cowling, Nr. Keighley.
Whidborne, C. S., Bosslane Farm, Hughenden, High Wycombe.
Neighbour, N. C., 33, Park End Street, Oxford.
Bailey, Mrs. E M., Hullbrook House, Shamley Green, Guildford.
Burwell, G. S., Vale Farm, Carlton, Nr. Saxmundham, Suffolk.
Watson, H., Walnut Hill, Hillsborough, Co. Down.
Elderkin, John T., Sunnyside Farm, c-o Orange Grove P.O., Johannesburg, S. Africa.
Cooper, Capt. A. W., Woodbury, Devon.
Dowson, Miss T. Carlos, The Brown House, Forest Row, Sussex.

HANTS COUNTY LAYING TRIALS.

FARM INSTITUTE, SPARSHOLT, WINCHESTER.

Report for sixth period ending April 15th, 1924:—

SECTION A.

Temp. Pos.	Owner's Name and Breed.	6th Month Total.	Eggs to date.	Test Total.
1.	Mr. R. McKenzie (W.L.)	100	302	284
2.	Mr. R. Hunter (W.L.)	100	301	267
3.	Mr. D. Gunston (Pen b) (W.L.)	72	268	264
4.	Mr. S. Wilkinson (W.L.)	98	268	263
5.	Mr. C. F. Rivaz (W.L.)	92	262	261
6.	Mr. D. F. Lawrence (W.L.)	94	248	231

SECTION B.

Temp. Pos.	Owner's Name and Breed.	6th Month Total,	Eggs to date.	Test Total.
1.	Capt. Harper (R.I.R.)	81	322	318
2.	Mr. J. H. Thompson (W.W.)	70	344	299
3.	Barford Poultry Farm (R.I.R.)	89	296	295
4.	Mrs. J. H. Drew (Buff Rock)	82	359	276
5.	Mr. S. Wilkinson (W.W.)	53	268	262
6.	Mr. D. W. Gunston (W.W.)	82	307	250

ANSWERS TO QUERIES—Continued.

J. T. C. (Foleshill). Of the two samples of grit, No. 2 is the better. No. 1 is rather the better sample of fish meal. The ground oats are not "Sussex" ground, and are only a very moderate sample. They are not worth more than 14s. cwt.

N. J. H. (Middlesex). Of the two samples of middlings you send, No. 1 is by far the better. No. 2 is hardly good enough to use. That which you have marked 3 is a dry mash mixture, which you have sent in mistake for middlings. It contains a good sample of bran, and appears a useful mixture altogether. The Sussex ground oats No. 1 is a very good sample. No. 2 is not so good.

POST-MORTEMS.

No. 12. Apoplexy, accelerated by excessive abdominal fat and pressure on the organs.

A. S. W. The hen had inflammation of the heart and membranes (pericarditis and endocarditis). The inflammatory products arrested the heart's action finally.

A. M. Two out of three chicks had B.W.D.

R. J. B. Pulmonary apoplexy.

B. S. The hen had a nutmeg liver, and a broken egg in the tube.

C. L. O. One had stoppage, and the other duckling cerebro-spinal meningitis, which is an infectious disease now being investigated by the Ministry of Agriculture and by the Edinburgh University.

D. R. B. Infectious pneumonia in both.

"Why?" Indigestion was the only trouble I could find, and that was acute. The gizzards were soft and undeveloped for want of grit. In only one was there a single particle.

D. L. Wantage. The bird had pneumonia from chill; not the specific infectious form.

Y. Z. X. One had B.W.D., and the others pneumonia.

H. W. L. Infectious pneumonia.

H. LEENEY.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times

We would therefore request that Copy should be posted not later than Thursday.

APPRECIATION OF "EGGS."

Hinderwell, S.O.,
Yorks.

" I am only a beginner, and I find your paper most helpful. I belong to the ranks of those who ' have given up all other poultry papers for ' Eggs,' and their name is legion.

I am very grateful to ' Eggs " for the help it has given me.

Yours truly,
(Miss) I. M. STANIFORTH."

The Manor House,
Haddenham, Cambs.

" I wish to mention that ' Eggs ' has been of very great help to me since I have been poultry-farming, and I'm sure it will help me some more in the future.

Yours truly,
(Miss) M. E. PORTER."

Brown Egg Farm, Downs Road,
Rottingdean, Brighton, Sussex.

" May I take this opportunity of thanking you for the instruction I have obtained from your valuable paper ' Eggs.' I owe my success entirely to your good work.

Wishing you and ' Eggs " every success.

Yours in haste, and thankfully,
W. H. BECKETT, Capt."

39, Star Street,
Bradmore, near Wolverhampton.

" I may say in conclusion, that ' Eggs " is a **real** poultry paper, and is worth much more than the 2d. per week, more like 2d. per page. Thanking you for giving us such splendid ' lessons ' each week.

Yours faithfully,
J. J. SUTTON."

King's Stagg,
Sturminster Newton, Dorset.

" As a matter of interest, I am an engineer by profession, and until the war I lived and worked in London. ' Eggs " is the only poultry paper I read, and I think that it is entirely due to the interest in poultry that it has caused me to have that I have now gone so far as to buy a little land, and I hope to settle down to enjoy a country life, instead of existing in a city.

For which many thanks.

Yours very truly,
G. LEE EVANS."

" May I also thank you for your great help, through your paper ' Eggs,' to me and my poultry. I have followed your instructions, and last year I brought up 504 chicks out of 517 hatched and all with hens. I did all the work with hens and chicks without any help until the chicks were a fortnight old. My housework to look to also. The birds did not give me a bit of trouble, although I started hatching 25th February and ended at the end of March."

Yours faithfully,
(MRS.) T. A. YOUNG.

30, Pitt Street, Mexboro', Nr. Rotherham.

" Why, oh, why, is the S.P.B.A. publication, ' Eggs,' not more widely advertised?

When I consider the type of information I have gleaned this last six weeks, after nearly five years of the other stuff, I feel that I ought to be able to claim damages against somebody for **lack of knowledge and time wasted.** There must be some others in the same boat as myself, too."

FRANCIS F. F. WALTON.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 25th APRIL, 1924.

GRAIN AND FEEDING STUFFS.—The quantities of home-grown wheat, barley and oats now being marketed are very limited, and late rates are easily maintained. Wheat averages 10s. 9d. per cwt., an advance of 1d. on the week. Quotations for barley and oats show no alteration, except at Hull, where white oats have advanced 4d. and black oats 2d. per cwt. Imported wheat, barley and oats are a somewhat irregular trade, but on the whole a firmer tendency is apparent, except at Liverpool, where supplies are in excess of the demand. Maize meets a quiet trade at about late rates.

A fairly active enquiry is reported for milling offals, with prices showing a slightly firmer tendency, while meals meet a moderate demand at about recent prices. Oil cakes are quiet, linseed cake being again cheaper except at Hull, but cotton cakes maintain their value.

MILLERS' OFFALS.—Bran (British): Bristol, £8 5s.; Hull, £7 12s.; Liverpool, £8; London, £7 17s. Broad Bran: Hull, £9 2s.; London, £8 12s. Middlings: Fine (Imported): London, £9 5s.; Coarse (British): Bristol, £9 2s.; Hull, £8 10s.; Liverpool, £8 5s.; London, £8 5s. Pollards (Imported): Bristol, £7 12s.; Hull, £6 15s.; Liverpool, £7 2s. Rice Bran: Bristol, £8; Liverpool, £7 10s. MEAL.—Barley Meal: Bristol, £10 10s.; Hull, £10; London, £10 5s. Maize Meal: Bristol, £11 15s.; Hull, £11; Liverpool, £10 12s.; London, £11 15s. Maize Germ Meal: Bristol, £11: Hull, £10; London, £9 5s. Maize Gluten Feed: Bristol, £11; London, £9 7s.

EGGS AND DEAD POULTRY.

Eggs meet with a firm enquiry and, with supplies only moderate, all classes tend to advance in value. First quality British and Irish eggs average 14s. and 13s. respectively per 120, as compared with 13s. 3d. and 12s. 6d. last week, and 12s. 6d. and 12s. in the previous week, while continental eggs have also advanced, the rise being especially marked in the case of 2nd quality. Dressed poultry, especially if of good quality, sells readily at very firm prices, supplies being not over plentiful.

Week-end Prices—Eggs (per 120): British, 14s. 6d., 13s. 6d.; Irish, 13s. 6d., 12s. 6d.; Danish, 15s. 3d., 14s.; Dutch, 14s. 6d., 13s. 6d.; Belgian, 13s. 9d., 13s. 6d; Italian, 14s., 12s. 9d.; Egyptian, 8s. 6d., 8s.; Moroccan, 9s., 8s. 9d.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 8d., 2s. 6d.; Irish, 2s. 3d., 1s. 11d.; Others, 2s. 3d., 1s. 11d. Ducks, 2s. 11d., 2s. 6d. Geese, 1s. 3d., 11d.

EGGS.

Per Doz.—Ashford: First, 1s. 4½d.; Second, 1s. 3d. Birmingham: First, 1s. 3d.; Second, 1s. 1¼d. Carlisle: First, 1s. 4d. Chelmsford: First, 1s. 5½d.; Second, 1s. 3½d. Denbigh: First, 1s. 0d.; Second, 11d. Derby: First, 1s. 4d. Dorchester: First, 1s. 2½d. Exeter: First, 1s. 4d. Guildford: First, 1s 7d.; Second, 1s 3d. Hereford: First; 1s. 0d. Hull: First, 1s. 2d. Ipswich: First, 1s. 6d.; Second, 1s. 3d. King's Lynn: First, 1s. 3d.; Second, 1s. 0d. Lincoln: First, 1s. 3d. Llandilo: First, 1s. 2d.; Second, 1s. 1d. Montgomery: First, 1s. 2½d. Newport (Mon.): First, 1s. 2d.; Second, 1s. 1d. Norwich: First, 1s. 4d. Oswestry: First, 1s. 2d. Penzance: First, 1s. 1d.; Second, 1s. 0d. Salisbury: First, 1s. 2d.; Second, 1s. 1½d. Shrewsbury: First, 1s. 4d.; Second, 1s. 2d. Skipton: First, 1s. 1d. Truro: First, 1s. 1d. York: First, 1s. 6d.; Second, 1s. 4d.

FOWLS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 10d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 9d. Hereford: First, 1s. 6d.; Second, 1s. 4d. Ipswich: First, 1s. 10d.; Second, 1s. 8d. Lincoln: First, *5s. 6d.; Second, *3s. 6d. Llandilo: First, 2s. 4d.; Second, 2s. 2d. Newport (Mon.): First, 1s. 8d.; Second, 1s. 6d. Shrewsbury: First, 1s. 6d.; Second, 1s. 3d. Truro: First, 1s. 4d. York: First, *5s. 9d.; Second, *4s. 6d.

DUCKS.

Per lb.—Exeter: First, 1s. 7d.

* Per Head.

ENGLAND'S PREMIER LAYING STRAIN SPECIALISTS.

WILLIAM COOK & SONS,

The Originators of the ORPINGTON Fowls and Ducks,

have pleasure in announcing their May prices for their Reliable Eggs for Hatching and Dependable Day-Old Chicks.

W. COOK & SONS' Specialities are

CHALLENGE WHITE WYANDOTTES.

Large birds and layers of fine eggs.

RHODE ISLAND REDS.

Producers of very fine eggs of good colour and the stock birds are of exceptional richness of plumage.

LIGHT SUSSEX.

Typical in shape and colour and proved layers.

BUFF AND WHITE ORPINGTONS.

Fine layers and true to type.

PREMIER BLACK LEGHORNS.

Large eggs and plenty of them can be depended on from these.

DESCRIPTION OF MATINGS.

Class I. stock in White Wyandottes and Rhode I. Reds consist of hens bred from 213-230 egg hens, mated to cocks from 235-242 egg hens

Class II. matings are represented by hens bred from 234-246 egg hens mated to cocks from 247-251 egg hens.

Class III. stock is formed from all their heaviest layers; hens bred from 255-263 egg hens mated to cocks from 265-274 egg hens

Class I. mating in Light Sussex are hens from 199-215 egg hens mated to cocks from 218-220 egg hens.

Class II. consists of hens from 219-230 egg hens and cocks from 232-239 egg hens.

Class III. stock consists of hens bred from 243-249 egg hens mated to cocks from 251-258 egg hens.

In Buff and White Orpingtons their Class I. matings consist of 202-218 egg hens mated to cocks from 221-225 egg hens.

Class II. matings are formed by hens from 220-235 egg hens with cocks from 237-241 egg hens.

Class III. from 242-250 egg hens mated to cocks from 254-257 egg hens.

Class I. matings in Premier Black Leghorns comprise 210-239 egg hens mated to cocks from 241-243 egg hens.

Class II. pens consist of 240-256 egg hens mated to cocks from 259-262 egg hens.

Class III. pens contain their 258-275 egg hens mated to cocks from 277-285 egg hens.

IDEAL White Leghorns

These have long been a feature at St. Mary Cray. Healthy rearable Leghorns which can be depended on for plenty of large eggs all through the autumn and winter months are sought by all who go in for this breed commercially, and everyone who orders from W. Cook and Sons can depend on having these qualities, for they have been bred into their stock by careful selection.

DESCRIPTION OF MATINGS.

Class I. hens have records of 215-240 eggs in first year mated to cocks from 245-249 egg hens. Class II. hens are all producers of from 247-259 egg hens, mated to cocks from 261-265 egg hens. Class III. hens have laid from 262-283 eggs, mated to cocks from 289-296 egg hens.

MIXED PURE CHICKS.

A good many people are glad to secure chicks from pedigree layers early in the season, provided these are inexpensive, and as W. C. & S. can supply a few from each batch at 10/6 per dozen, 42/= for 50, 80/= for 100, and they are all from their best layers, those who are looking for inexpensive birds would do well to send their orders in without delay. Those interested should note that the selection of breeds in these must be left to W. Cook & Sons.

SAFE DELIVERY OF CHICKS GUARANTEED TO ALL STATIONS IN THE BRITISH ISLES.

HATCHING DATES: May 2nd, 5th, 7th, 10th, 14th and twice weekly onwards.

PRICES.	EGGS.		CHICKS.	
WHITE ORPINGTONS BUFF ORPINGTONS RHODE ISLAND REDS LIGHT SUSSEX WHITE LEGHORNS	Class I.	... 5/= per dozen. £2 per 100	Class I.	...12/6 per dozen. £5 per 100
	Class II.	... 7/6 per dozen. £3 per 100	Class II.	... 15/= per dozen. £6 per 100
	Class III.	... 10/6 per dozen. £4 per 100	Class III.	... 21/= per dozen. £8 per 100
WHITE WYANDOTTES and BLACK LEGHORNS	EGGS as above.		Class I.	... 21/= per dozen £8 8s. per 100
			Class II.	... 25/= per dozen. £10 per 100
			Class III.	... 35/= per dozen. £12 12s. per 100

No more White Orpington Chicks available, only Eggs for Hatching.

Special attention is drawn to the fact that **Black Leghorns and White Wyandotte** Chicks are the same price as during April.

BUFF ORPINGTON DUCK EGGS.—Only to not having the hatching facilities for these eggs for a week or two (owing to heavy bookings for Day-Old Chicks), W. C .& S. will for a short time sell the sittings at 7/6 and 10/6 per dozen — all straight from the nests; hundreds produced daily.

Visitors who have inspected their stock can vouch for the enormous weekly output of Eggs and Chicks of highest quality, and these and many other poultry-keepers will be very glad to avail themselves of the above prices, which are made possible owing to the excellent sales during the earlier part of the year.

THERE IS PLENTY OF TIME TO REAR AUTUMN AND WINTER LAYERS, AND THE BEST WEATHER FOR THIS IS NOW AVAILABLE. CONSEQUENTLY PURCHASERS CAN (WITHOUT DIFFICULTY) PROVIDE THEMSELVES WITH THE MOST TYPICAL PURE-BRED STOCK GUARANTEED BY THE OLDEST POULTRY BREEDERS IN ENGLAND—FOR A SMALL OUTLAY.

They have only one farm address, to which all orders should be sent, viz.:—

ST. MARY CRAY. KENT.

TELEPHONE:
ORPINGTON 7.

Inspection of farm cordially invited every weekday. St. Mary Cray is only 14 miles from London (Victoria, Holborn and St. Paul's), Southern Railway, S.E. & C.R. Section.

A postcard—mentioning "Eggs"—will secure a copy of their mating list, which also contains valuable advice—based on many years' experience—on feeding and management of chickens and stock birds.

The following are a few of the many entirely unsolicited letters received from purchasers of Chicks, Eggs and Stock:—

Amersham, April 12th, '24.—The White Wyandotte chicks I purchased from you are all alive and doing well, and I shall be glad if you will let me have another dozen Class 3 birds of the same breed as soon as possible. —George L. H.

Middlewich, Cheshire, April 14th, '24.—I duly received the Light Sussex chicks, as advised, and am highly delighted with them. They are fine birds and are doing grandly, and the Meal and Feed came along in good time for them.—Thos. S. L.

Fulham Palace Rd., S.W.6, April 14th, '24.—In sending you an order for White Leghorn chicks I am sorry to tell you that all those I purchased from another firm have died, and I intend having your birds only in future, for from previous experience I know I need have no fear of yours dying—given a fair chance—for whatever the weather may be your birds, fed on your foods, will thrive. A friend for whom I obtained the White Leghorns last week is delighted with them, and has asked me to let you know that the chicks are proving to be sturdy birds, just as anticipated after my recommendation of your stock.—E.K.

Wellingborough, Northants, April 12th, '24.—The Rhode Island Red chicks you supplied are forging ahead splendidly, thanks to your foods, and the advice given on the management of the youngsters. Their progress is the more remarkable when people round the district are losing quite a number, and one man with whom I am acquainted has already lost 400 birds, these being the whole of his early hatches. We were most pleased with the size and texture of the Leghorn eggs recently supplied also.—F .C. G.

Longford, Coventry, April 16th, '24.—A few lines to let you know the two batches of White Leghorn chicks arrived safely on Monday. I have had the best of results with those you sent me early in March and have proved that your birds are very easy to rear. I appreciate your business methods, and you can rest assured of further orders from me whenever I require them.—H. H.

—— House, Lymington, April 20th, '24.—I am glad to tell you that the batch of chicks you sent me in February last are a strong vigorous lot of youngsters, and they have appeared to enjoy the variation in weather we have had since they arrived here. You will be interested to know that the second batch of chicks you sent me are doing equally as well as the first, and I am quite satisfied with your stock in every way.—A. T. A.

Hillsborough, Co. Down, April 18th, '24.—When writing you a short time ago I mentioned that as soon as my Wyandotte pullets raised from your eggs last year had completed their Winter laying I would let you have an account of the number of eggs produced. One pen of birds—ten in number—laid in six winter months 1,157 eggs, and another pen, sisters of these, produced 1,097 eggs in the same length of time. I am raising some cockerels from the eggs you sent me early this year to mate with these in their second year, for we have never before had as many eggs during the Winter as from the birds referred to.—H. W.

Marlborough, Wilts, April 14th, '24.—Thank you for sending me a fine batch of chicks. They are strong and active, and are continuing to make good progress, and I now enclose a further order. The first batch which are now three months old are very big for their age, and I am putting them on to your matured food shortly.—A. E.

Newtown, Bedworth, April 15th, '24.— The chicks you sent last week arrived in good condition and are coming along finely. They are all of fine size, and I am hoping to do further business with you shortly.—G. K.

Brownhills, Nr. Walsall, April 19th, '24.—In sending you the balance due for the chicks to be supplied on April 25th, I am pleased to be able to inform you that all the chicks you supplied to me seven weeks ago are doing splendidly. A. E. D.

Wednesday, May 7th, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

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Edited by TOM NEWMAN.
PRICE TWOPENCE.

Twelve Months Post Free 12/8
Six Months „ „ 6/4
Three Months „ „ 3/3

THE LIBRARY OF THE

"*Your Lovely Chicks!*"

What others say of my

LIGHT SUSSEX, WHITE LEGHORNS, BUFF ROCKS,
WHITE RUNNER DUCKS, KHAKI-CAMPBELL DUCKS.

A. Holland, Esq., Trastevere, Rushden, Northants, April 24th, '24.—"Pleased to say the Chicks arrived safely—a nice strong lot."

A. Nimmo, Esq., Westbank, Falkirk, Scotland, April 23rd.—"Chicks arrived safely, all alive and lively."

Mrs. Alan Hunter, Commant's House, Hythe, April 24th, '24.—"The Chicks have arrived, and are lovely."

R. H. Curtis, Esq., Palestine Cottage, Sprowston, Norwich.—"Thank you for the splendid way you packed the Day-old Ducklings—they are all alive and lovely, and doing well."

BIG REDUCTIONS.

Extra Special Pen	Eggs	30s. doz.
Special Pen 1.	„	20s. doz.
Pen 2.	„	12s. doz.
Pen 3.	„	8s. doz.

27s. per 50; 52s. per 100.

Day-old Khaki-Campbell Ducklings	35s. doz.
„ White Runner „	28s. doz.
Day-old Chicks	20s. doz.

Reduced rate per 100.

Miss Harrison-Bell,
WELWYN——HERTS.

The 'Prefer' House.

FACTS. READ THIS TESTIMONIAL FOR THE ABOVE HOUSE.

MANUFACTURED BY

C. G. Tebbutt,

TIMBER IMPORTER,
ST. NEOTS,
HUNTS.

MADE FOR AND CAN BE SEEN AT

The Shubbery,
St. Neots, Hunts.
11th Oct., 1923.

Dear Sir,—I have been a poultry-keeper for many years, and have had several varieties of houses for the birds. I have now been using two of your "Prefer" Houses for a year, and, in my opinion, they are the best and healthiest I have ever seen.

Yours faithfully,
E. H. HARRISSON, M.A., M.D.,
Bth. Cantab.

The Manager,
White House Poultry Farm, St. Neots.

The WHITE HOUSE POULTRY FARM.

ST. NEOTS,
HUNTS.

Be sure you get a Guarantee of Purity, don't buy so-called Sussex Ground Oats from which the hulls have been screened after grinding—by this method valuable oils are lost—which your poultry need.

BUY SUSSEX GROUND OATS WITH NOTHING TAKEN OUT

"Welco" Sussex Ground Oats are ground from the finest Oats the world produces, grown where the sun shines. They are screened and cleaned before grinding, and are Guaranteed to be both absolutely pure, and also the full value of the grain, no screening being necessary owing to the fine grinding by the very latest machinery for the purpose. Sample on application.

Price 17/- per cwt.,; carriage paid on 4-cwt. lots. Less than 4 cwt. 9d. per cwt. extra. Cash with Order. Special terms for ton lots.

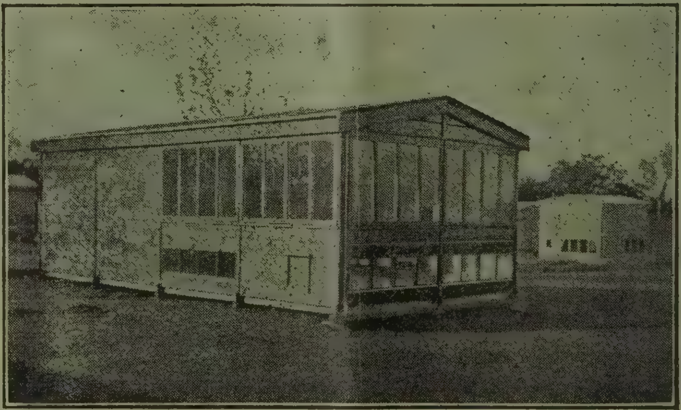
Welco REGD **SUSSEX GROUND OATS**

W. LOOSE & CO., *Stockport Corn Mills,* **STOCKPORT.**

PROPER HOUSING vs. CHICK MORTALITY

"FAULTY VENTILATION and Housing causes 90 per cent of the deaths amongst young chicks."

This is a definite conclusion arrived at by an American Poultry Scientist, who has made a special study of the subject, performing many thousands of post-mortem examinations. In the course of an interesting article republished in the "National Poultry Journal" of 8th February, Professor E. C. Morris, of San Diego, states, in his outspoken American way, that the theory as to Coccidiosis and kindred diseases of chicks are "knocked into a cocked hat" by the facts. By means of scientific deductions he claims to prove that an overwhelming majority of the mortality amongst chicks is due to pneumonia, which in turn is produced by faulty ventilation, i.e., by insanitary and faulty housing conditions. To combat this state of affairs he recommends adherence to the modern principles of ventilation which are very generally accepted in all parts of the world.



Brooder House, convertible type, 20ft. x 10ft. Capacity, 500. Above house will take either one flock up to 500 chicks, or four flocks up to 150 chicks. Prices: £38 to £45. 40ft. by 10ft. £75 to £85.

EXTENSIBLE UNIT BROODER HOUSES

have been conceived, designed and produced in the light of these very principles of sanitation. Ventilation and ample lighting are strong features, as may be seen from the illustration of a typical Brooder House. Poultry people who desire to reduce their chick mortality should leave feeding experiments alone and study housing principles. Fuller particulars and illustrated literature may be had from the sole maker:

W. H. COLT, M.N.U.P.S., M.S.P.B.A., **Bethersden, Kent.**

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, May 7th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscription to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months; 3s. 3d., three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

INCUBATION.

An apology is necessary for inflicting another article on this subject on our readers. It is suggested by the experiences of the past season, and the inspection of some 2,000 eggs which have failed to hatch, and which have been sent us to report upon.

It is not an easy task, nor an enviable one, especially as most of the eggs are sent by post. Some of them are badly smashed, and senders generally enclose the letter, giving details, with the eggs; and it is not infrequently a sticky, smelly, messy mass, which it is decidedly unpleasant to unravel. One wonders why breeders are so careful to send hatchable eggs by rail, and the unhatched by post.

Some of our readers are evidently not quite clear as to what is meant by "dead-in-shell," for all of those sent to us were described as such, whether they were clears, broken yolks, addled or chicks which had chipped the shell and failed to hatch.

A rough record of what occurred has been kept. It is not pretended that the deductions made are always accurate, but based on the details sent they afforded a fair guide as to causes of failure. The most difficult cases were those in which the embryo had nearly reached the pipping stage.

One can say pretty definitely that in over 70 per cent. of the cases sent, it was the eggs which were at fault and not the incubator or its management. In two cases the eggs were from machines of the "made to sell" type; the hatch was hopeless, and the only thing was to warn the senders against these cheap machines, which we do not allow to be advertised in "Eggs."

In three cases the fault was in the location of the incubator. It is surely time that everyone knew that "any old place" will not answer if even fair results are to be expected, and that success cannot be expected if it is run in a shed where the temperature varies from several degrees below freezing point to between 60 and 70 at mid-day.

To turn first to the 70 per cent. which, details given, led to the conclusion that the cause lay with the stock birds and not with the incubator. These conclusions were deduced by the percentage of clears, dead germs and addled eggs, and also, to some extent, to the stage of development reached. It was, of course, impossible to trace the causes of this trouble in the great majority of cases, but in a few it was undoubtedly due to the male being immature, and in others to bad feeding. It was not difficult to determine the breeders were in an overfat condition. In two or three cases it might be traced to overmating and in some to in-breeding. It certainly was surprising to find that in such a large number of cases the failure could only be traced to the stock. There is also the fact, as was pointed out over six years ago in these columns, that hatchability is an inherited factor, and it is quite possible that in the selection of breeders this is too often lost sight of, as a hen would transmit poor hatchability to her progeny. It is probable that in some pens the percentage of breeders which lay eggs of low hatchability is comparatively high. In a good many cases there were indications that the germ had been weakened by too low a temperature in the early days of incubation, and it is noticeable that in one, where a very poor hatch had been experienced in a 390 machine, started at 103 degrees, there was a very marked improvement in the succeeding hatch, when it was run at 105 degrees the first week.

In another machine the hatches were over 70 per cent. in one tray, and below 30 in another tray.

Dealing with the actual cases of dead-in-shell, a surprisingly large number had perished about the seventeenth day. To what cause to attribute this it is very difficult to say. It did not appear to be a question of moisture, with one or two exceptions, as there was nothing to indicate that the eggs had dried down too rapidly; they appeared to be normal in every respect. The only suggestion that can be made is that it was a question of temperature in the early stages. It should be mentioned that in one of these cases nearly the whole of the chicks were lost through an outbreak of B.W.D., and it is possible that a high percentage of pre-natal mortality is due to this, and perhaps other diseases. That, we only suggest.

It is not easy to account for those cases which had reached the twenty-first day, and in some instances had "pipped" the shell and yet failed to hatch. In a few, where the chicks completely filled the shell, there was good reason to believe that the failure was due, not to excess of moisture—for we believe there is never any fear of this in a properly-ventilated machine—as to a stagnant atmosphere during the last few days of incubation. In one case where the dead-in-shell exceeded 60 per cent. the operator stated that he had stopped up all but two of the ventilation holes in a hot-water incubator. This may have been advisable in the early stages of incubation, when the embryo needs very little oxygen. It is certainly fatal when the lungs are about to function. One can only conclude that more oxygen is needed in the last two or three days, but care should be taken in making provision for this, that there is not an excess of cold air from underneath, as often happens with the hot-air machines. We are still strongly of opinion that the best results are obtained from these when only one of the felts are removed and the other remains throughout the hatch, particularly in the early part of the season. The real danger appears to be a stagnant atmosphere, and it is probably due to this cause, rather than any other, that so many chicks reach the hatching stage and yet fail to hatch. It may be of interest to add that in one case the operator, after turning the eggs in the evening, forgot to replace the lamp and did not discover his omission until the following morning. In spite of this, the hatch exceeded 60 per cent., but how the chicks reared we are unable to say. The first egg did not pip until the twenty-second day.

We only present these facts and theories for our readers' consideration. The details supplied are not sufficient to permit anyone to come to a definite conclusion, and one can only suggest probable causes, but on one point we can be fairly sure, that is, that in a high percentage of cases where the failure can be traced to the eggs and not to the incubator.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Modern Poultry Feeding.

By TOM NEWMAN.

CHICKEN REARING EXPERIMENTS AT WELLINGHAM P.F., RINGMER.

There is nothing sensational to report in the development of the chicks in this experiment at the conclusion of the seventh week on April 18th. They have made good progress, and are all in the best of health. No. 1 still maintains a slight lead, but No. 3 has again made rather more gain on the week. They have now been moved to the colony houses, and with the beautiful weather we are experiencing should continue to make good progress. As our object has been to find a cheap commercial mash which will give us the most economical development, the results must so far be regarded as satisfactory. I have been endeavouring to find some combination of proteins which will give us these results while using the minimum quantity of milk, which has now become almost unprocurable, and if the third experiment fulfils its promise we shall have got a little way on the road. There are still other combinations which can be made, but this is only a preliminary canter, and I hope next year the Council will arrange for further experiments on an extensive scale. In none of these formulas was any special provision made for Vitamin A, for that reliance was placed on a plentiful supply of green food; if that had not been obtainable we should have had to rely on alfalfa meal.

First Series—7th Week, completed April 18th.

Experiment 1.—Average weight, 1 lb. .56 ozs.
Average gain, 3.28 ozs.
Experiment 2.—Average weight, 15.52 ozs.
Average gain, 3.44 ozs.
Experiment 3.—Average weight, 15.66 ozs.
Average gain, 3.58 ozs.

Second Series.

The chicks in this series were hatched on March 19th, and the weights given are to the end of the fourth week on April 16th. The formulas are the same as in the previous experiment, with the addition in the first three of a salt mixture, consisting of 60 parts bone meal, 20 parts common salt, and 20 parts carbonate of lime. The chicks were rather closely confined for the first week or two owing to weather conditions, and their progress has been slow in consequence, but they are perfectly healthy. In No. 4 the formula is the same as in No. 1, except that no salt mixture is used.

Experiment 1.—Average weight, 5.2173 ozs.
Gain on week, 1.3773 ozs.
Experiment 2.—Average weight, 6.4347 ozs.
Gain on week, 2.0347 ozs.

Experiment 3.—Average weight, 5.4782 ozs.
Gain on week, 1.5523 ozs.
Experiment 4.—Average weight, 4.636 ozs.
Gain on week, 1.236 ozs.

It is too early to say anything as to the value of the addition of the salt mixture, and it is possible that its value would only be apparent in a ration which was deficient in this respect.

PROLAPSUS.

A few cases of prolapsus of the oviduct have been reported. It is not often, I think, that this is due to too stimulating a ration, rather is it one of the penalties which we pay as the result of breeding for heavy production. If these cases occur it would be advisable to reduce the animal food in the mash and stop feeding maize for the time being. Birds on free range during the summer months are better without the addition of animal food to the mash.

Some complaints are to hand respecting chicks feathering badly. This may be due to many causes not associated with feeding, but when it does occur from this cause it is generally due to a lack of fats in the ration. In that case I should be inclined to add one teaspoonful of cod liver oil to the pound of mash, or else 4 per cent. linseed meal, or the end may be gained even by increasing the quantity of maize fed.

I have received the following letter from Mr. W. J. Welford :—

> " You may possibly be interested in a little of our own experience. This is our first season with dry mash, we are using your formula, milk to drink and the addition of cod liver oil. On Tuesday last week we sent 120 cockerels to market as poussins (80 White Leghorns and the remaining 40 Rhode Island Reds). They were exactly seven weeks and one day old and weighed (nett) 110 lbs. They had been reared in a Mammoth brooder, in a flock of 420, and were a fair sample of the whole brood, the remaining cockerels not being sent as they were from pedigree birds. I, personally, was rather pleased with them, and thought they had not done too badly. Other flocks in the same brooder are doing equally well. Thirteen chicks were lost in the rearing of this actual brood, and the mortality to date on all our chicks is under 5 per cent."

Mr. Welford is to be congratulated on his results, they are highly satisfactory, especially when we consider that 80 of the chicks were White Leghorns. If we can develop chicks to this weight at seven weeks old they should be sold at a good profit. The one thing is to create a market for them ; I don't mean merely find one, but create a demand. The general public don't know anything about these birds.

The following formula was used by a reader who complains of poor egg production and unrearable chicks :—3 parts bran, 3 parts sharps, 1 part clover, 1 part ground oats, 1 part meat meal. Grain, equal parts wheat and oats, two ounces per bird. This was a wet mash. Samples sent were poor bran, sharps no better than fine bran, the ground oats were just fair, but not Sussex ground, and the clover only rubbish. Is it any wonder that the hens didn't lay and the chicks were difficult to rear. The yolk of the egg must necessarily have been deficient in fats, as a matter of fact some of the hens developed sour crop, the result of digestive trouble caused by the indigestible nature of the mash.

A reader asks, " What is the use of feeding ground oats when whole oats are equally digestible, isn't it a very useless expense? " Agreed that as much of the whole oat is digested as of the ground, but the latter is digested much more rapidly, and that is important to a heavy producing hen which needs to digest its food rapidly ; it is also of great importance in fattening, where quick digestion is important. Where there is difficulty in digesting, the digestibility of other foods is retarded.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick Sussex.

LATE HATCHING.

With reference to my remarks on " Late Hatching," which appeared in a recent issue, I have received the following very interesting letter from Miss Collcut. The result of her experiment we shall watch with interest.

One realises how essential quiet and rest is to the early-hatched chick, and quite recently I saw an article on this subject in one of the American papers, in which the writer suggested that real mischief was done by the glass-fronted incubators, his argument being that after the struggle to get out of the shell, the chick required as much rest as possible, but with the light in the incubators attracting it it was always on the move, and consequently this resulted in digestive trouble. There may be something in this. At least it is not a matter which we can lightly put aside. At one time I always used to remove the chicks from my incubators and put them in a fireless brooder for 24 hours, and there let them remain. I imagined that this really did them some good, but never gave the matter much careful thought.

However, I am sure you will be anxious to read Miss Collcut's letter:—

" Dear Mr. Newman.—In your article headed " Late Hatching," in last week's issue of " Eggs," your remark: 'It is not easy to explain why May-hatched chicks take so long to mature,' interested me very much. As I have a theory which I am testing for the second season, I am of the opinion that the chicks do not get enough rest. I argue it is not common sense to expect baby chicks to be active for at least eighteen hours on end; they cannot possibly give their digestive organs time to rest and so their food fails to nourish them. I find it is during the first two months that they do not grow as fast as the January and February hatched.

Last year I had a two-compartment house built, fitted with shutters, and put in one compartment R.I. Reds chicks, hatched April 1st, in the other W. Leghorn chicks late April hatched. They were made to have twelve hours rest every night until they were eight weeks old, after which time they were ringed and joined the rest of the flock. They responded to this treatment in a marvellous way, and the pullets came in to lay with a large egg a week before those hatched a fortnight earlier and reared in the usual way.

They were fed the usual ration, but they did not eat as much mash as those having the longer day.

I have just started the experiment again with R.I. Reds hatched April 4th and am hoping to prove late-hatched chicks can be made to mature and be as profitable as their earlier sisters.—Yours faithfully, (Signed) D. COLLCUT."

S.P.B.A. FOOD SCHEME.

We have taken the following from the "Times," of April 28th. It is a short comment on the S.P.B.A. proposals for the purchase of foods for their members, and the remarks are very pertinent, more especially those which relate to the whole-hearted co-operation which it is necessary for the Council to secure.

It is necessary to again say that so far the response to the proposal has not been so great as the enthusiasm with which Major Few's resolution was received at the General Meeting would lead the Council to expect.

It seems difficult to believe that with a large membership like that of the S.P.B.A. a sufficient number will not come forward, to call meetings in the various districts to see whether it cannot take advantage of the proposal and buy their foodstuffs co-operatively. The saving to any members with over two or three hundred head of stock would be very considerable in the course of twelve months.

POULTRY FOODS—CO-OPERATIVE METHOD OF PURCHASE.

"It has been said that the majority of those who keep poultry with some idea of profit buy their raw material at retail prices and sell their produce at wholesale rates. With reference to the purchasing side of their business, it may be added that the quality of the food is frequently in inverse ratio to the cost, and that those who buy in relatively small quantities are very generally at a double disadvantage. The truth is that very many have no sufficient knowledge of either the commercial or feeding values of the foodstuffs they use, or if they have, they are not in a position to buy to the best advantage. To ensure an adequate yield of eggs or flesh a sufficiency of food must be used, and the economy of production requires that the quality shall be the best. No saving can be effected by underfeeding, but suitable rations become too expensive when foodstuffs are bought in small quantities and the quality is left to the discretion of the dealer.

Under present-day conditions it is imperative to reduce to a minimum the costs of production, and it will probably be agreed that an immense amount might be saved annually by the combination of poultry-keepers for the selection and purchase in bulk of foodstuffs on the wholesale market. Several attempts have been made to induce co-operation for this purpose, and among those that have attained some measure of success is a combination of commercial egg producers in East Sussex, resulting in a material saving. More ambitious proposals are embodied in a scheme that is now receiving the consideration of the Scientific Poultry Breeders' Association. As the result of a careful inquiry into the possibilities, it is proposed to register a subsidiary society for the purchase and supply of feeding stuffs to the members of the association, provided they form branches for distribution. The smallest quantity that could be sent to any branch would be two tons, which could be made up of various foods, each branch making the local arrangements with individuals. A weekly price list would be sent to branches from the purchasing centre.

The membership of this association exceeds 5,000, so that the scheme should prove of considerable benefit, provided the Council secure whole-hearted co-operation and the grouping of members is found to be practicable. Members of other more or less similar bodies will no doubt watch the progress of events with interest. But whilst the greatest benefits may doubtless be secured by a central purchasing committee, operating on behalf of a number of distributing branches, obvious advantages attach to smaller and purely local efforts, such as may be put forth on behalf of a society of poultry-keepers of almost any urban or rural area, and this applies to "backyarders" as well as others.

The mere fact of combination is not sufficient, and it is evident that the success of any such scheme must depend entirely upon the men at the top, in respect to expert knowledge of foodstuffs and a close acquaintance with market movements. Generally speaking, however, there must necessarily be a considerable saving in cost, and an equally important improvement in quality, as well as a certain measure of security against fraudulent misdescription. The small poultry-keeper in particular is the most frequent victim of adulteration and misdescription, and much good could be done by the societies in bringing doubtful samples under the notice of county or county borough official samplers and analysts."

AN OLD FRIEND.

The "Feathered World" Year Book is to hand, and if a recommendation is needed, one can only say that it is up to its usual high standard. Those who know that standard will have ordered a copy, those who don't may like to know it is very high. All the usual features are retained; well-known experts discuss the various breeds and their progress during the past year. There are many first-class illustrations which will be valued by the devotees of any particular breed. The introductory note is by Mr. S. H. Lewer, who asks "Is All Well?" This question he discusses very fully, and with his conclusions we can heartily agree. It is a very happy little review of the position, which, without being unduly optimistic, is cheery and practical, with a suggestion running through it, that a little self-help is the best way of putting the wrong right. A valuable article is Mr. Clem Watson's "How to Export," for no one is so capable of writing on this subject. Mr. Edward Brown on "The Poultry Industry in 1923," "The Poultry Fancier's Outlook" is by our old friend "Quill," who finishes by predicting that the three breeds which will make most progress in popular favour this year, will be: (1) The Red Sussex; (2) Indian Jubilee Game and Bantams; (3) Buff Plymouth Rocks. As to 1 and 3, I think he is right, but of No. 2, "not knowing, can't say." There are numerous other articles by well-known experts, but space will not allow me to mention them. Get the book, it is worth a place in your library, and is invaluable for reference. One must heartily congratulate Miss R. Comyns-Lewer on such a production.

POULTRY FOOD SUBSTITUTION CASE.

CORN MERCHANT FINED.

As the result of a case heard at Richmond on Thursday, April 24th, E. State, a Kew corn merchant, was fined 40s. and £5 5s. costs for serving a "Poultry-feed" purporting to be "Ful-O-Pep" Laying Mash, which was only a substitute of little value.

We are informed that, on analysis, this "Poultry-feed" was shown to consist largely of goose-foot, wild seeds and refuse. Messrs. Quaker Oats, the manufacturers of "Ful-O-Pep," at once instituted proceedings when this fraudulent substitution was brought to their notice.

The full penalty for both counts of the charge (1) Fraudulently representing poultry food as "Ful-O-Pep," and (2) an offence against the Trade Marks Act, is a fine of £10, or a month's hard labour, for each offence.

What we would like to ask is, what protection there is for the poultry-keeper under this or any other Act? We quite appreciate that Messrs. Quaker Oats, Ltd., have done good service in bringing this case forward, but what of the other side of the question, the selling of a poultry food which, on analysis, was shown to consist largely of goose-foot, wild seeds and refuse? What is there to prevent any unscrupulous corn merchant from compounding such a rubbishy mixture as this and selling it as a poultry food? That is the question which appeals to us. The public are in no way protected, and it is strange that there is no Government Department which can take up this matter and prosecute on its behalf in cases of such deliberate frauds as this.

SEX-LINKED INHERITANCE.

I have taken the following from an old issue of "Eggs," dated November 22nd, 1916. This was written by the late Mr. Oscar Smart, and is the first mention of sex-linked inheritance which ever appeared in a poultry paper, certainly in this country, and probably in any other. I am sure many of our members will read it with interest, and will appreciate my reason for reproducing it:—

SEXUAL TRANSMISSION.

"A much more important fact in inheritance as relating to the present subject is that known as sexual inheritance. There are many characters which are transmitted by the male only to his daughters, and by the female only to her sons. The differentiation is in some cases seen at birth, while in others it is not apparent until maturity is reached. Here there is a very wide field for investigation. So far as we can judge pigmentation (that is black or purple legs) if inherited by the male will be transmitted from him to his daughters only under certain given conditions, while the female can transmit, under certain conditions, non-pigmented legs to only her male offspring. Now as the colour of the shanks usually shows itself at birth this is a particularly happy field in which to work. As I have already said, Brown Leghorn hens X Silky male gives yellow legged cockerels, and dark legged pullets, but the cross is not a happy one, because the pullets from this mating are such exceptionally bad layers. For some reason, which is not as yet quite clear, this pigmentation is not in every case sex limited in descent. Some years ago I bred a Black Orpington cock with pigmented shanks to White Orpington hens with non-pigmented shanks; all the progeny, both male and female, had blue legs, so that it is quite clear that there is much in this cross of non-pigmented x pigmented which we do not understand. I am of opinion that only expert biologists will be able to get to the bottom of this subject from a purely scientific point of view, but I am also convinced that the collected works of the average experimental poultry breeder should provide us (1) with some very valuable data upon which to work, and (2) with all the information required by any practical poultry breeder to allow him to make high-fecund matings which will give high-fecund chickens, the sex of which would be distinguishable at birth. Some of the matings I would like to see tried are:—

Brown Leghorn hens x White la Bresse male.
White Leghorn hens x White la Bresse male.
White Wyandotte hens x White la Bresse male.
Brown Leghorn hens x Silver Campine male.
White Leghorn hens x Silver Campine male.
White Wyandotte hens x Silver Campine male.
Brown Leghorn hens x Blue Andalusian male.
White Leghorn hens x Blue Andalusian male.
White Wyandotte hens x Blue Andalusian male.

If any of these crosses give dark-legged pullets and yellow-legged males, I am absolutely certain, if high-fecund birds are used on both sides, that they would give a very valuable class of layers. I hope sufficient breeders will come forward to take up these matings.

ONE SEX HETEROZYGOUS FOR A SPECIFIC CHARACTER.

This also should prove a profitable field for research work. We have at least one well-known case of this in fowls, and there are undoubtedly others yet to be discovered. These are the facts in the case known. It is Silver x Gold, but, as I have said before, this cross does not give a very good class of layer. The facts are quite simple and easily understood. They are:—

(1) A silver cock possesses what is known as a 'double dose' of the silver factor; the female, on the contrary, is half a gold and half a silver, but silver being dominant to gold she develops only silver.

(2) When a silver hen is bred to a gold cock the silver allelomorph which she possesses is always found in the eggs containing a meal germ; these are fertilised by a germ containing a gold allelomorph. Now, as we have seen, when a silver and a gold allelomorph are found in the same germ cell (as in the case of the ordinary Silver Campine hen) the bird develops silver; therefore, all the males from this cross are silver, and none of them by any chance whatever are gold. The gold allelomorph possessed by every silver hen is found in the germ containing a female chromosome; this is fertilised by a gold allelomorph from the gold male, so that as only gold allelomorphs are found in the females from such a cross they naturally only develop gold plumage.

(3) We are, therefore, led to two very simple deductions: (a) That to breed a silver pullet the silver allelomorphs must be introduced by both parents, but (b) to breed silver cockerels the silver allelomorph need only be introduced by one parent.

We want to find other cases in which a particular colour is heterozygous in one sex, and homozygous in the other, and then we want to resort to crossing so as to obtain males and females showing differentiation in colours at birth. There is a very wide field for such research work. There is only one thing certain and that is this: No self colours are sex limited in descent, so we shall have to make our experiments only on birds whose plumage shows a pattern. There are plenty such, so I venture to hope that this class of experiment will also be undertaken by some of our readers."

NOTICE.

Thanks to the efforts of the recently-formed Northants Branch of the Poultry Club, the Midland Counties Trades Exhibition are holding their Poultry and Bantam Show on the 21st and 22nd of May under Poultry Club Rules, and have added seven more Utility Classes, which will be judged by Mr. Powell-Owen.

Mr. Alderson Smith, of Eastfields Pedigree Farm, Braunston, the Hon. Sec. of the branch, asks that Northants utilitarians, whether members of the club or not, will support these classes, for which the usual awards of the Poultry Club will be available.

He will also be glad to have the names of those who would like to become members or to send particulars to anyone interested.

By supporting the Poultry Club in their efforts greater interest in poultry culture is created.

Applications for Schedules can be made either to Mr. Alderson Smith or to the Show Secretary, Mr. Wilson, Box 3, G.P.O., Northampton, at once.

BOUND VOLUMES OF " EGGS."

We are constantly asked whether bound volumes of " Eggs " are procurable, and in answer may I say that these are always procurable from our publishers. Someone wrote to me three or four weeks ago, and stated that a " a bound volume of ' Eggs ' was the most complete Poultry Book yet published," as he could always find the information he required in its pages.

Notes on Utility Ducks.

By A. HAROLD PAINE

It was suggested a few weeks since in an editorial that much less success generally attended the incubation of duck eggs than is the case of those from hens. The factors which govern successful incubation are so many, and the whole subject is such a highly controversial one that I feel competent only to deal with it very generally, and just to suggest the best means by which success is likely to be attained. I cannot even say which type of incubator it is best to use. Probably the tank incubator is the safest in case anything goes wrong with the lamp as the temperature will be maintained for a considerable period—at least until the trouble can be remedied. It is advisable to commence with a temperature of 102 degrees. When the thermometer indicates this temperature the eggs should be put in the drawer. Do not close the drawer immediately, but let the eggs gradually warm up; then when 102 degrees is shown with the bulb of the thermometer resting on the eggs, this temperature should be maintained during the first three weeks, after which, and especially during hatching, the heat will increase to 105 degrees or more. From the 3rd until the 24th day the eggs should be turned twice daily, or more frequently if possible, keeping the egg drawer out only sufficiently long for that purpose. The question of cooling the eggs is one on which there are many opinions. It depends to some extent on the outside temperature and whether any further cooling is necessary other than that which the eggs receive when they are turned must be left to one's judgment. The eggs should be tested about the 10th and 20th days, and any that are infertile or addled should be removed. It is inadvisable to open the drawer after the 24th day. From the 10th to the 24th day sprinkle or spray the eggs once or twice daily with warm water. More moisture is required than for hens' eggs, or, to quote Capt. R. A. Long in the Utility Duck Club Year Book and Breeders' Register 1924: "It is not sufficient to say that duck eggs require more moisture than hen eggs in an incubator. I do not believe it is possible to give too much moisture, and like to see it condensing on the outside of the ventilation holes throughout the entire period of incubation. If, on opening the drawer of a tank machine to remove the ducklings, they are found to be dripping wet and looking like half-drowned rats, then a good hatch may be expected. The amount of moisture required and the method of introducing it vary with the type of machine. All water trays and troughs should be filled from the first day, and eggs should be sprinkled daily after the first week, and twice daily for the last week.

The correct amount of ventilation for hen eggs will cause too much evaporation for duck eggs, so the circulation of air must be curtailed. This may be done by blocking up nearly half the holes in the sides of the tank machines and by retaining the felts in the bottom of hot-air types throughout the hatch.

I would suggest that if the incubator is one which has an open space when the drawer is removed, a piece of wood should be made the same size as the drawer, and put in whilst the eggs are being turned, so as to keep up the heat of the machine.

Naturally I hear of and receive reports of both successes and failures, just the same as on my own plant both are experienced, but looking back over a period of years, during which many thousands of chicks and ducklings have been hatched out artificially, I think I may say that, taking all factors into consideration, equal hatching results have been obtained.

I will just quote two reports, one received some time ago, and the other this week. The first writer (A Novice) says: "I am very pleased with my first hatch, having got 52 ducklings out of the 54 eggs left in the incubator after six had been removed as infertiles." The second one: "I am sending you details of a recent hatch of duck eggs. I put 110 eggs in the machine (a hot-air one), running in a specially ventilated incubator house I built during the winter, brick and tiled roof. One hundred and seven of the eggs were fertile, 96 hatched and dried, and of these I killed five, which were invalids. The remaining 91 are as fit as fiddles, and now nearly a week old."

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in " EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Correspondence.

A SERIOUS SET-BACK.

To the Editor of "Eggs."

Dear Sir,—I have had a serious set-back this season, having lost an entire hatch, and as my experience may be of use in helping someone else, I will explain what happened.

I hatched out 168 good chicks from 200 eggs. They were put into a home-made fireless brooder which had served me well last year, and kept quiet, in the dark and without food, for 48 hours. I then commenced feeding as much kibbled wheat and maize as they could clear up in a quarter of an hour, three times a day. Up to the eighth day I lost four chicks. On the eighth day twelve died, and during that night fifteen more. I was unavoidably absent during the whole of this time and during the ninth day, when twenty died. On the morning of the tenth day I found thirty dead, and many very sickly. I have not had very much experience, and did not know what to make of it. Most of the chicks were very lively; the sickly ones showed signs of diarrhoea, and the bedding was also smeared with pasty and semi-fluid excretions, of a pale colour, and rather frothy.

I killed the sickly ones, more than a dozen; removed the bedding, and put in fresh; put 'Yadil' in the water, and began feeding chick mash with dried milk. During the day another twenty died—or perhaps more. I then separated out forty of the strongest and liveliest chicks, and put them in another hover or brooder, which was quite fresh and clean and on unused land. In the original hover there were over twenty dead next morning, and in the new brooder eight of the strong chicks had died. By the twelfth day all had died or been killed.

My next hatch, 200 chicks, on fresh ground, and in another brooder—fresh and disinfected—began to go in the same way. The puzzle was that most of them were extremely lively and active. I lost eight on the fifth night, twelve during the sixth day, twenty-five on the sixth night, and then, and only then, I remembered something. I had a few chicks—pedigree hatched—with a couple of hens. These were running "wild," and getting only kibbled maize, and were a ripping little lot. So I stopped feeding wheat to the others. That day eight died, and during the night one more. In the week that has passed there have been no more deaths. *Was it the wheat?* I think there can be little doubt about it; yet I cannot see anything wrong with it. It is a clean sample of Argentine wheat, and I do not see any more than a trace of small seeds. It is also very slightly "mitey," but only slightly, and is sound looking and smelling.

BUT ANOTHER TIME I WILL NOT BE SO QUICK TO SUSPECT B.W.D., OR COCCIDIOSIS, OR BROODER PNEUMONIA. The local medico tells me I was a fool—and, indeed, I quite agree—because *chicks are like babies—at the first sign of trouble, suspect their tummies.*

I cut open about half-a-dozen chicks, but am not experienced enough to declare definitely that anything was very wrong. In no case did the intestines appear very inflamed. Heart and lungs were normal. Gall bladder in two cases rather large and dark; otherwise rather pale coloured. Liver rather patchy, and yellow coloured. In one chick there was a good deal of yolk left, in others only a trace remained.

Chicks became listless suddenly, but continued to eat; some died on the hopper, mostly they died within twelve hours of sickness. Excreta was semi-liquid and frothy after sickening; but yet I could not find much inflammation in the bowels, or perhaps the inflammation was evenly spread, but not acute, and, lacking experience, I could not detect it.

Yours faithfully,
W. L. REID.

INCUBATION.

To the Editor of "Eggs."

Dear Mr. Newman,—Further to my letter of the 12th inst., on the subject of incubation, here are the particulars as therein promised you of the eggs that were accidentally cooled for eight hours in a small hot-air incubator:—

March 31st.	Eggs put in machine		47
April 12th.	Eggs broken open by me for examination...	3	
April 18th.	Do. Do. Do. ...	3	
April 21st.	Do. Do. Do. ...	1	
		—	7
			40
April 22nd.	Number of chicks hatched		34
	Dead-in-shell		6

From this you will see that the results are extremely good, and it, therefore, may be well worth anyone's while to continue with the hatch should a similar occurrence befall them.

You may be interested to know how this incubator was operated. First of all, I used no felts; furthermore, the nursery drawer was taken out of the machine until the 21st day, and the bottom diaphragm, instead of being composed of canvas, was of butter muslin, and the nursery drawer door was left open all through the hatch.

I cut a 4in. slit in the heater jacket, some 6in. from the lamp flame, and therein inserted a double strip of lamp wick, 2½in. in width. The lower end of the lamp wick rested in a jam jar, which contained a pint and a half of rain-water, one pint of which was consumed every day, and well flooded into the machine.

This moisture arrangement was started on the first day of incubation, and was carried all the way through, and, considering that the eggs had eight hours' cooling, you will no doubt agree that the hatch is very splendid.

If any of your readers are interested in the above, it would give me great pleasure to show them the machine, and another that is being run in a similar fashion, both of which have given excellent results, by appointment, at 1, The Oaks, Gipsy Hill, S.E.19.

Yours sincerely,

C. B. PARISH.

VACCINES AND SERUMS.

To the Editor of "Eggs."

Dear Mr. Newman,—There never was any vaccine yet which was absolutely infallible in all cases. There are always exceptions. In grammar people say: "Exceptions prove the rule."

Human vaccines are prepared for a large number of diseases. In most cases of their particular disease they are successful—occasionally they are not, because there is something in the constitution of the recipient which renders him unable to respond to the treatment. But because an occasional exception is met with, one does not say that vaccine treatment is useless. After ordinary vaccination a person may get a mild attack of small pox. Would you then say that vaccination is of no use?

As I had been getting many colds, during the winter, I was inoculated with a compound of catarrhal vaccine, made at a good laboratory. This vaccine prevents colds in most people. During the inoculation I had no colds, but about ten days after the last dose, I had a worse one than I had ever had before. It was different, because the first stage of a cold was missed out, and I went straight on to the second stage, but it was extremely bad. And since then I have had another one. But I don't say vaccines are useless, because this one failed with me. I say that either I got hold of a very bad germ, which was not in the vaccine, or there is something in me which makes me unable to respond to it, and if I met anyone else who was subject to colds, I should advise him or her to try that vaccine. It is the same with birds. Because a vaccine which prevents avian diphtheria in other cases fails to do so in one particular flock, would you deprive all other flocks of its benefits?

If so, I certainly agree with "A Subscriber" that your actions and opinions are unscientific.

Yours truly,

E. KNIGHT.

Miss Knight's argument, if she will pardon our saying so, is a little difficult to follow. We quite appreciate that there are in human practice individuals who, owing to some peculiarities of constitution, fail to respond to vaccine treatment, but we were dealing with a flock made up of 300 individuals.

If the argument had been based on the ground that two or three of the individuals in this flock had failed to respond to the vaccine, then Miss Knight's letter would have been understandable, and her criticism justified, but of the 300 individuals in the flock, 250 failed not only to respond, but were badly affected with the very disease after inoculation with the vaccine which had been especially used to prevent.

"Unscientific" our "actions and opinions" may be, but they were not based solely on this case; other examples have been cited. Miss Knight has related her experience with a compound catarrhal vaccine, and in spite of it, she will advise anyone who is subject to colds to try it, on the supposition that there is something in her which makes her unable to respond to it, or that she had got hold of a very bad germ which was not in the vaccine. May we ask her, whether such advice is scientifically sound, without she can base it on a large number of cases, in which she can prove immunity has been secured. Would this not be more scientific than to give such advice on the supposition that her own case is a peculiar one?

But, assuming that 300 individuals had been inoculated with this compound catarrhal vaccine, and 250 had suffered as Miss Knight has suffered, would she still advise others to try it? That is seems to us would be a far better comparison than the one she has drawn between her own experience and our example of the flock. Whatever advice may be given as to vaccines as a preventive of colds, at present we shall prefer the old methods of deep breathing, well-ventilated rooms and fresh air.

"Subscriber" has suggested that the failure with this flock was due to a badly-prepared vaccine. Miss Knight, if we understand her aright, attributes it to either peculiarities of constitution, or to a bad germ which was not in the vaccine. The arguments, so far advanced in favour of vaccine treatment for Diphtheritic Roup, we can only say, with all deference to our critics, have only proved that they are unreliable, therefore, we can see no reason to withdraw the remark that "we had no faith in them," for how can one have faith in that which is not reliable. Until they are proved reliable, that is, that they will prevent the particular disease for which they are prepared and sold, no one can have faith in them. "Peculiarities of Constitution," "badly-prepared vaccines," and "bad germs not contained in the vaccine," all militate against their successful use. How can one have faith in them? For further evidence of unreliability, readers are referred to 20,000 doses distributed on the Lancashire farms, mentioned in the issue of April 23rd, and to last week's editorial. Meantime, will those who have criticised our attitude, kindly send proof of immunity secured in a **field test** (not a laboratory test), and a definition of immunity as they understand it.—(Editor).

THE ACTON FANCIERS' SOCIETY.

The Acton Fanciers' Society held their usual monthly meeting on Monday, April 28th, at Steyne Hall, at which a judging competition had been arranged, the idea being for instruction of members and friends. A few birds were brought up for members to handle, and records taken, the final judgment being in the hands of Mr. Rich to award prizes, he afterwards giving a few words of advice.

The next meeting will be held on Monday, May 12th, for which an Egg Show is arranged for members and poultry-keepers resident in Acton, each exhibit to consist of five eggs, ducks three. A small entry fee will be charged, and a special prize will be given for the best plate of eggs which any exhibitor gives to the Hospital.

Hon. Secretary, W. F. Grimes, 28, Rosemount Road, Acton, for any details required.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. **Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

Anxious (Bedford). From your description the pullets appear to be suffering from what is known as "limberneck." This is generally caused by unsound food; you may have some meat or fish meal that has been stored badly, or they may have picked up something in the run. Give them a dose of Epsom salts, that will generally put them right if given in time. (2) I do not think there is any future for the breed you name, and certainly could not advise anyone starting to take it up. You had much better start with your early love, the Buff Rock.

Small Eggs (Yeovil). It is always difficult to advise a mating to improve size of egg. It is quite true that size of egg is inherited, and if you mate the son of a big egg dam to your small egg hens there will be some improvement in the size of the egg of some of the progeny; but you must not expect a very high percentage will lay larger eggs, because they will inherit other factors from their dam's which will tend to nullify the effect of the introduction of the new blood—early maturity for example. It will take you two or three years to build up a large egg strain, and will need careful selection. (2) The hen is "down behind"—in other words, has a broken-down abdomen; she may continue to lay for some time, but there is no cure, and when she has finished laying she is only fit for the pot.

E. L. D. (Burnley). The chicks are certainly doing very badly, but there does not appear to be anything wrong with the feeding, and a change to dry mash is not likely to effect the desired improvement. I am afraid they are constitutionally weak, and in that case it is difficult to help you. Add one teaspoonful of cod liver oil to the pound of mash when weighed dry, and give them one meal of bread and milk a day; if possible move them to fresh ground, and, above all, see that they do not huddle at night. The sample of ground oats you send is quite good, but the chick feed contains too much millet; it would be better without any at all.

Senex (E. Yorks). Your ration is little more than a maintenance one, and that explains the poor laying and small eggs. Give the pullets 2½ ozs. of the mash weighed dry, and replace the oats in the grain feed with kibbled maize—this should lead to some improvement. One cannot positively say how much food a hen requires, roughly above 4 ozs. a day, but her appetite will vary, and if she is in full lay she will require more. (2) Your friend is right, a hen in full lay digests her food far more rapidly than one which is not laying. (3) The sample of barley meal is too coarsely ground; it has not the same value to a heavy producing hen as maize meal, because it is not so easily digested. Many thanks for your appreciation of "Eggs"; there are hundreds like yourself who have given up all other papers and take "Eggs" only.

N. D. C. (Hereford). If the thermometer was correct, and there was no great variation in temperature during the period of incubation, one can only come to the conclusion that the eggs were at fault. I am the more inclined to this view, because you say such a large number of the germs perished as far as you can tell about the eleventh day. This could only have been a question of temperature or the eggs themselves. The question of the atmosphere in the incubator drawer would not arise at such an early stage. Losses from that cause occur between the 18th and 20th day as a rule. Yes, it is quite true that some eggs may fail to hatch because of the thickness of the shell. I do not think you have any claim on the seller because the eggs were not infertile, but you could write to him; he may meet you in some way.

S. T. A. (Ayr). I do not think you could do better than the Buff Rock so far North, it would be better for your purpose than the Orpington. The White Plymouth Rock has a big reputation in the States, but I do not know of any laying strains in this country. The mash you are using would be improved by the addition of one part Sussex ground oats; it is a little "thin" at present. (2) If the male's dam laid 212 eggs, but had a bad winter record, then his value as a breeder would be very small, and it would not be advisable to use him. The winter record is of the utmost importance when the object is breeding highly-fecund stock; the strain seems very slow to mature, and that is a bad feature when heavy production is being considered.

R. E. P. (Ashley Heath). The records are hardly satisfactory, especially as the birds were bred from such good stock. Those of Pen 1, hatched April 15th, are just moderate. Have any of these birds gone into a partial moult? The low record of the 63 pullets could, no doubt, be explained by the fact that it contains pullets hatched from February to May 7th. Your feeding is not ideal now, and I should reduce the bran by 1 lb. and replace 1 lb. of the soya bean meal with maize meal. I wish you would understand that the experiments at Wellingham are but experiments, and, although the use of soya bean meal has proved most successful, they are not, as I have said before, model rations.

H. W. P. (Chard). In reply to your letter, I do not see the advantage, in giving the ammonia quininae cit. to fowls except when they are suffering from colds or anything of the kind. The prescription is Capt. Leeney's, and I understand the dose is one teaspoonful to the gallon of water, but I am sure that Capt. Leeney did not recommend it for laying hens unless they were sick. In the case you mention it was prescribed for chicks.

F. K. (Northampton). You only sent me three eggs, and this is not sufficient for me to form an opinion upon, as to whether your stock is at fault or whether your incubator is wrong. One hundred dead-in-shell is a very high proportion, but the question is what do you call dead-in-shell? So many of the eggs sent to me as dead-in-shell are merely addled, and in such cases it is nearly always the fault of the stock birds. Of the three eggs you send two were addled, and one contained a fully-developed chick which had reached the 20th day, but it appeared rather small and weakly. I am afraid I am unable to advise you unless you send more particulars.

H. S. (Elmham). In reply to your letter. Pork bones, fed as green bone, would be quite useful in place of any other animal food in the mash, but I should not exceed 10 per cent. I had the greatest difficulty in deciphering the latter part of your letter, and it would help we very busy people if you would write a little more clearly. From what I can make out, you wish to know whether goslings need any brooder or hover. They would, of course, need some protection, and it would all depend upon their age, but they would not need any artificial heat after the first month.

J. W. H. M. (Wisborough Green). In reply to your letter (1) I can see nothing to be gained by altering the pens as mated, as we cannot trace any failure in incubation direct to the stock birds. (2) I always advise no cooling, and there will be no need to make any allowance, because you are not turning by hand. (3) With regard to the removal of felts. I should not remove either until the 19th day, and then only one. (4) Yes, you could do without testing. I do not think much good results, and sometimes there is a good deal of injury.

POST-MORTEMS.

Felix. The case was a remarkable one. The whole clutch had become dropsical. Not merely diluted but consisting of completely transparent fluid. They ranged in size from that of a full-sized (shelled) egg to that of a pea, and were too numerous to count. This is what gave the belly the feeling of dropsy which you could not have failed to observe. You ask the cause! Ask me another. Glad to hear that my prescription for the chicks has proved so successful. (Coccidiosis.)

E. F. R. S. Inflammation of the heart and its investing membranes and of the pleurae. This duck had the gouty form in which the serous membranes appear as if dusted with flour; the powder material consisting of minute crystals of sodium urate. The contraction of the membranes upon the heart, and deposit of semi-dry products in place of the natural lubricating fluid which the pericardium should contain, gives rise to friction and further inflammation, and finally the heart's action is quite suddenly stopped. That is when the owner finds the bird dead and tells us it was quite all right at last feeding time. It was not. I have commented in these columns before on the fact that birds may be grossly infected with tuberculosis; be carrying half their own weight of egg tumours; or an utterly degenerate liver that cannot hold together another day, and not appear to have anything the matter with them. I am of opinion that they have very little feeling, except in the skin, and that is provided only to keep them from injuring themselves. Capons rush for food immediately they are released from the operating table, and often consume the objects from which they have just parted. Would they do this if they were in pain?

Miss F. T. The first one had inflammation of the bowels, caused by an accumulation of coal dust which had passed out of the gizzard as neither grit nor food. There was much of the same black material left. I expected to find it in others but did not. The others had pneumonia.

G. H. B. The action of "a stiff neck and being unable to raise the head" suggests brain disturbance, and it is, but it is a reflex action from the digestive organs, like the so-called stomach staggers of horses and cattle. A fast and an aperient, and a modification of the ration is necessary. You do not say that you cracked the skull of this one, and I do not mistake the extravasation of blood over the left hemisphere of the brain as being the cause of its behaviour during life. It is possible that the damage was otherwise sustained, but I don't think so.

Mrs. W. N. Pneumonia, and I should fear from the cause you suspect. I have had birds from the same source, and have had splendid results.

C. B. The chick had pneumonia.

Miss G. W. N. (Bromsgrove). This duckling was badly chilled, the abdomen was black, and the lungs congested. You omitted to enclose the fee of 2s. 6d. for the post-mortem examination.

"Cemercit." This hen was self-poisoned (no, not suicide, but auto-intoxication). The most anteriorly-situated and largest lobe of the kidney had become filled with urea in solid form, and the tube leading from it had become distended with the same material, and to a volume of at least ten times the normal size of these canals. Nothing passed, and finally the poisonous elements were absorbed. What you saw and attributed to broodiness was an advancing coma. The thirst was consistent with the conditions found. The heart and chest membranes looked like those of salt poisoning. High temperatures often leave the heart very dark in colour and the chest membranes with a suffused brick-dust colour. Some day I would like to give a summary of the conditions found in so-called broodies which die on the nest, but it would only interest pathologists, I fear, and any practical advice for prevention could be summed up in a paragraph.

H. H. The kidneys were purple with inflammation. Something in the food is suspected.

J. T. G. or J. S. G. The hen had a number of fully-shelled eggs about the size of a blackbird's, and a fine clutch above waiting for admission. The liver was the colour of yellow ochre, and through its failure, the belly was filled with dropsical fluid.

Mrs. S. B. N. Infectious enteritis of a very acute type, rendering the intestines black.

Col. G. This bird had pneumonia. It was also the subject of coccidiosis, one horn of the caeca being partly filled with cheese-like products of the disease, but would have lived, and been one of those dangerous subjects which perpetuate the disease by passing out the organisms in the eggs in the following season. The "tinged dropping" can be accounted for as coming from the caecum.

L. M. G. Acute tuberculosis. The old hen had a pint of dropsical fluid in her.

B. H. A. The W.L. pullet did not prove to have "ruptured uterus," but the much more frequent trouble of excessive production and breaking away of yolks into the peritoneal cavity and peritonitis as a result.

E. G. H. The Buff Plymouth Rock hen had peritonitis, caused by the presence of loose egg-material among the bowels.

H. LEENEY.

"BRITISH POULTRY AND POULTRY KEEPING."

Never have we read any book relating to the Poultry Industry, which has given us greater pleasure than the above.

Published for the British Committee of the World's Poultry Congress, by the Editors of "Feathered World," and edited by Mr. S. H. Lewer, the President of the Committee, it deals with every recognised breed of British Poultry. The illustrations are very numerous, and only one word describes them—*Splendid*. He would be exacting, indeed, who would look for anything better.

Mr. Edward Brown contributes a most interesting article, "Some Introductory Notes on British Poultry." The whole book reaches such a high level of excellence that one cannot speak too highly of it. The thanks of the whole industry are due to Mr. Lewer for the great service he has rendered it. Apart from its interest and value to the British Poultry-Keepers, it will certainly do immense good by spreading a knowledge of British Poultry abroad, and so increase our export trade.

Copies can be obtained from the "Feathered World" Offices, 9, Arundel Street, Strand, W.C.2, price 2s.

OUR FRONT COVER.

If Miss Harrison-Bell is chiefly known by our readers as a breeder of ducklings that is perhaps her fault, and may be due to the fact that she has sent us so many beautiful photographs of her pupils with the ducks on her well-known farm at Sisservernes.

Miss Bell is also well-known breeder of Light Sussex, White Leghorns, and Buff Rocks. Her business acumen, no doubt, considerably assisted her in her choice of breeds, for all three are deservedly popular, and possess the highest economic properties.

The Light Sussex is a truly British breed, and one which we might well be proud of producing, for there is no better in the wide world, although, perhaps, we have been somewhat tardy in recognising the fact. Of the White Leghorn one need not speak, but there are not a few well-known breeders who are of opinion that the Buff Rock will make the greatest headway of any variety during the coming year. So we may well say that Miss Bell, with three such breeds and her White Runner and Khaki-Campbell ducks, has made up her mind to provide what the public wants.

SECOND MIDDLESEX COUNTY LAYING TEST.

Held at Hearne House Poultry Farm, Hayes, Middlesex.

REPORT FOR SIXTH MONTH.

LIGHT BREEDS (Single Birds).

Pos.	Owner and Breed.	Total.	Score.
1.	J. and A. Moore (B.L.)	109	109
2.	Roebuck and Illingworth (B.L.)	104	104
3.	J. W. Williamson (B.L.)	109	97
4.	F. J. Betts (W.L.)	95	95
5.	J. A. Howarth (W.L.)	94	94
6.	Major Kingscote (Ancona)	94	94

HEAVY BREEDS (Single Birds).

Pos.	Owner and Breed.	Total.	Score.
1.	H. J. Veeger (L.S.)	125	125
2.	Mr. and Mrs. E. H. Lade (R.I.R.)	123	123
3.	Lady D. Fraser (R.I.R.)	117	117
4.	J. Sykes (W.W.)	110	110
5.	P. E. White (W.W.)	110	110
6.	A. Snowden (W.W.)	110	110

LIGHT BREEDS (Pairs).

Pos.	Owner and Breed.	Total.	Score.
1.	E. and W. A. Framey (W.L.)	182	182
2.	F. C. Tomlinson (W.L.)	178	177
3.	Mrs. H. Kent (W.L.)	172	172
4.	E. and W. A. Franey (W.L.)	173	172
5.	W. J. Grist (W.L.)	165	165
6.	Miss M. E. Balfour (Mendels)	188	165

HEAVY BREEDS (Pairs).

Pos.	Owner and Breed.	Total.	Score.
1.	Major T. Williams (R.I.R.)	231	231
2.	A. D. Prince (R.I.R.)	217	217
3.	G. A. Dawson (R.I.R.)	215	215
4.	W. Claughton Douglas (W.W.)	211	211
5.	P. E. White (Buff Rocks)	209	209
6.	A. Prince (W.W.)	205	205

H. Winch leads the Cross Section with 104 eggs.

(Signed) LILIAN SMITH,
Manageress.

THE MIRFIELD AND DISTRICT POULTRY-KEEPERS' ASSOCIATION.

The 13th of April saw the close of the sixth month of the test held on the Robberttown Poultry Farm. The health of the flock is excellent. Results:—

SINGLE BIRD.—LIGHT SECTION.

Pos.	Owner and Breed.	Score.
1.	Ledgard and Brown (W.L.)	118
2.	Sykes Bros. (W.L.)	86
3.	T. Ashcroft (W.L.)	80
4.	J. A. Thackrah (B.L.)	74
5.	A. Blackburn (W.L.)	71
6.	J. W. Brown (W.L.)	70

SINGLE BIRD.—HEAVY SECTION.

Pos.	Owner and Breed.	Score.
1.	C. Whiteley (W.W.)	93
2.	A. Blackburn (W.W.)	84
3.	J. Raistrick (R.I.R.)	75
4.	A. Blackburn (W.W.)	75
5.	G. Brook (R.I.R.)	75
6.	G. Martin (R.I.R.) *	74

LIGHT PEN SECTION.—THREE BIRDS.

Pos.	Owner and Breed.	Score.
1.	N. Firth (W.L.) *	222
2.	Ledgard and Brown (B.L.)	194
3.	—. Chillingbeck (W.L.)	169

HEAVY PEN SECTION.—THREE BIRDS.

Pos.	Owner and Breed.	Score.
1.	W. Horsley (B.R.) *	194
2.	T. E. Burnett (L.S.)	182
3.	P. Furness (R.I.R.)	152

* Winners of Monthly Ribbon.

The following birds have been broody:—Nos. 42, 58, 60, 62, 63. No. 2, W. Leghorn died with ruptured oviduct.

P. FURNESS, Hon. Sec.

EGG-LAYING TEST.

LANCASHIRE POULTRY FEDERATIONS' COMPETITION.

The report for the sixth month (March 9th to April 5th) in the Lancashire Federation of Utility Poultry Societies' Twelve Months' Egg-Laying Competition has just been issued by the Secretary, Mr. E. Collier. The light breeds are penned at Mr. H. Hayes' Farm, Tottington, who reports six deaths during the month. The birds are now in good health and back in pens. Forty-eight birds have laid 20 eggs or over during the 28 days, and birds No. 57 and 100 have laid 26 eggs each in the same period. The heavy breeds are penned at Mr. W. Hamnett's Farm, Blackpool, who reports one death. The egg output in this section has been again satisfactory, 58 birds having laid 20 eggs or over during the month. One Wyandotte and a Buff Orpington have not laid during the 28 days. Thirteen birds have been broody. The birds are all well, with one exception. The highest record to date is held by a R.I.R., with 140 eggs in the 168 days. The highest record for a Wyandotte is 133 eggs, whilst two have 127 each to their credit, and 30 birds have over 100 eggs each to date. The scoring this month is four points for a first grade egg of 2oz., and three points for a second grade eggs of 1¾oz. The positions are as follow:—

LARGE BREEDERS' SECTION.

LIGHT BREED (Three Birds).

Pos.	Owner.	Eggs.	Points.
1.	W. Braithwaite	230	1171
2.	W. Barron	221	1139
3.	S. Street-Porter	208	1062
4.	R. Rodwell	201	1024
5.	H. Sutton (one b)	199	980
6a.	J. Hamer	191	972

WHITE WYANDOTTES.

Pos.	Owner.	Eggs.	Points.
1.	R. Moon and Son	318	1655
2.	R. Rodwell (one b)	287	1478
3.	W. Barron (one b)	330	1446
4a.	T. Gardner (one b)	292	1442
5.	C. C. Humber	283	1402
6.	E. Cam	272	1372

A.O.V., HEAVY BREED.

Pos.	Owner and Breed.	Eggs.	Points.
1.	W. Wearden and Sons (R.I.R.)	305	1632
2.	R. Green (R.I.R.)	294	1502
3.	T. Braithwaite (R.I.R.)	317	1476
4.	R. Moon and Son (R.I.R.)	280	1370
5.	J. Rainford (R.I.R.)	291	1352
6.	H. Sutton (R.I.R.)	252	1225

SMALL BREEDERS' SECTION.

LIGHT BREEDS (Single Birds).

Pos.	Owner.	Eggs.	Points.
1.	H. Tattersall	65	336
2.	J. Smith	64	334
3.	F. and H. Evans	63	330
4.	Mrs. J. A. Mellor	51	258
5.	W. L. Holding	48	244
6.	W. J. Swarbrick	51	242

HEAVY BREEDS.

Pos.	Owner and Breed.	Eggs.	Points.
1.	W. Fletcher (W.W.)	123	601
2.	T. B. Price (L.S.)	91	464
3.	S. B. Lonsdale (W.W.)	83	409
4.	A. Spencer (W.W.)	102	394
5.	A. H. Brain (W.W.)	72	366
6.	T. Windle (W.W.)	83	360

CORNWALL POULTRY TRIALS.

The instructor and manager of the County Poultry Trials at Truro (Mr. C. H. Toy), reports the results for fifth month—February 4th to March 2nd—as follows:

WYANDOTTES.

Pos.	Owner.	Eggs. Laid.	Eggs. Counting.
1.	Miss Foster	71	70
2.	Miss B. Stocker	65	65
3.	Mr. L. Choak	77	61
	LEGHORNS.		
1.	Mr. F. Glasscock	72	72
2.	Mr. H. Rashleigh	79	61
3.	Mr. T. H. Rowe	60	60
	LIGHT SUSSEX.		
1.	Capt. Cresswell Hobbs	73	73
2.	Capt. Seldon	67	66
	RHODE ISLAND REDS.		
1.	Mr. P. Moss	76	76
2.	Mr. T. H. Rowe	72	72
	OTHER BREEDS.		
1.	Mr. F. Martin (Buff Rocks)	80	80
2.	Mr. F. Martin (Barnevelders)	64	63
3.	Major Fitzgerald (Exchequer Leghorns)	63	47

Total number of eggs laid (176 birds), 2,738, a gain of 33 eggs on the total of the previous month. Weather conditions: Variable, cold, wet, stormy, snow, and frost.

VACCINES AND SERUMS.

To the Editor of "Eggs."

Dear Mr. Newman,—I have been watching your little discussion with interest.

I must compliment you on your courage in attacking what is supposed to be a Scientific Method of treating disease; a method, which had its origin in the unscientific days of 100 years ago.

What does Subscriber mean by a more progressive form and method of fighting disease? There is only one satisfactory method of fighting disease, and that is by removing the cause. Roup is a Filth Disease, and the best way of combating this trouble is by Hygiene and Sanitation.

You can't hope to successfully treat disease by injecting into the blood a filthy dirty matter. Roup will not make much headway if the blood current is clean and free from putrid matter.

I am not so foolish as to suggest that a man can protect himself absolutely from this scourge, but he who keeps his birds under the best and cleanest conditions has no need to fear Roup.

Vaccines and Serums are no substitutes for bad sanitation, but feeding, bad breeding and bad management.

I noted Subscriber's remarks on the case of 200 Leghorns which had been inoculated and afterwards developed Avian Diphtheria. It seems to me to be the height of impudence to suggest that these birds had not been properly attended to, or that the work was carelessly done, or that the Vaccine was not properly prepared, or that the wrong kind had been used. Rather a poor argument, Subscriber.

Does he suggest that if he inoculates a bird and it does not afterwards contract roup, that he has prevented it? How does he know? How does he know the bird would have had roup? I have heard tell of a man who could tell when a bird was going to have a cold, but have never heard of a person who could say that a bird **was going** to have roup.

I rather enjoyed the beginning of paragraph 5, which was the truest portion of his epistle. I would also like to say that the pages of "Eggs" are always open, and always have been, for fair comment and for education. We are all open to learn, but some of us prefer something with some body in it, as we say when speaking of foodstuffs. We do not want any humbug. I would just like to say that I have cured bad cases in less than three weeks by simply purging them, fasting them for three days, and daily washing them with a solution of Izal, and have been producing eggs in the three weeks. These birds are then immune, and will remain immune so long as there functional organs are free from accumulated filth.

The method of producing one disease in the hope of preventing another is wrong in principle.

As an Anti-inoculator I appreciate your attitude on this matter.

Yours faithfully,

Pewter House, JOE EDMONDSON.
Balderstone, Nr. Blackburn.

BRITISH EMPIRE EXHIBITION.

To the Editor of "Eggs."

Sir,—May I ask the courtesy of space in your paper for the insertion of this letter.

I have spent all this week in the Poultry Section at Wembley, exhibiting my Barnevelders, and I am immensely impressed with the trade advantages it offers to breeders, but bitterly disappointed with the exhibit as a whole, from the Poultry Industries' point of view. It seems to me that not only has the finest opportunity ever known to help the Industry been utterly neglected, but the small pavilion which labels itself "Poultry Industries' Exhibit," is an insult to the intelligence of the British public, and the thousands of Overseas visitors.

It is easy to criticise and throw stones after a job is done, and I feel just as responsible and ashamed as a breeder and unit of the Poultry Industry as anyone else, but I never realised until I saw Wembley what a serious educational and wonderful patriotic effort has been organised to represent to England and the Empire generally what Britain stands for in every branch of its Trade Industries.

Whose then has been the fault to let this golden opportunity pass? Was the Government approached with a view to granting special facilities or assistance? What means were taken to try and raise the necessary money to enable the Poultry Industry to be adequately represented? Has the case ever been put before the Poultry-keepers of England other than by the circulars advertising the advantages of booking pens at the Exhibition sent out by the N.U.P.S.? Not that I am aware of. As it stands now, a small pavilion with forty pens nicely arranged for the benefit of the few private individual breeders, who have had the sense to fill them, and even these not all occupied, while outside the imposing inscription: "The Poultry Industry Exhibit."

Admitted a few keen people have worked hard even for this small effort, but where is the unity and collaboration that should be present. At a time like this, when the Empire demands to see and know how all its industries exist, and are being conducted, surely a mighty effort should have been made, and the honour of the Industry upheld. Something is very wrong in the organisation of the Poultry World. As it appears to me, it is the complete lack of enterprise and foresight on the part of the main ruling bodies, coupled with narrow-minded jealousy. Instead of all branches of the Poultry Industry sinking their differences and pulling together for the Industry's good, a small section has made a practically unsupported effort, and the Industry is disgraced.

Is it too late to wipe out the stain? I don't think so.

The Poultry Industry is a great one, and must be properly represented in every branch. There is Prof. Punnet's exhibit in the Government buildings; a peep into the scientific side, incubation and natural methods of hatching, the rearing, housing, feeding, etc.; food values, practical demonstrations of grain and mash mixing, and the right way to do things generally, all should be shown; lectures from experts at stated times, photographs and facts of various tests. Utilities' work, the fanciers' outlook, nothing should have been left untold, and the great intelligent British public would have realised, indeed, that the poultry industry was a living factor in England's existence, not a private venture with a successful few, and a hundred and one petty societies, each fighting solely for its own private end.

Let us wake up from our long sleep for the Empire's sake, the Industries' sake. Get new blood into the administrative powers, new ideas and fresh enthusiasm, or "to-morrow we may die," perish slowly and sadly for want of helping ourselves.

J. M. WALKER (Mrs.).
Oaklane Pedigree Poultry Farm, Newdigate, Surrey.

BRIGHTON STOCK TEST REPORT FOR MARCH, 1924.

HEAVY BREEDS SECTION.

Competitor and breed.	No. of pullets	Hatching & rearing score.	March Eggs 1st grade.	March Eggs Under weight	Total eggs to score.
R. Mummery (W.W.)	9	71	147	11	735
W. F. Morris (W.W.)	12	65	154	37	877
Countess Buxton (W.W.)	5	38	97	9	434
Mrs. Crooke (W.W.)	4	32	72	19	333
W. Crabtree (W.W.)	10	61	179	32	873
Brighton (W.W.)	8	57	104	21	543
Craig Gallon (R.I.R.)	8	64	69	28	409
McLeod (R.I.R.)	9	67	139	17	766
Mrs. Russell (R.I.R.)	6	59	79	24	434
R. Saunders (R.I.R.)	7	55	124	16	560
S. Simmins (R.I.R.)	10	72	134	24	803
Capt. Woodford (R.I.R.)	14	91	120	21	824
Capt. Woodford (R.I.R.)	9	64	129	22	680
Miss Clark (R.I.R.)	10	66	91	32	512

LIGHT BREED SECTION.

Competitor and breed.	No. of pullets	Hatching & rearing score.	March Eggs 1st grade.	March Eggs Under weight	Total eggs to score.
Bradbury (W.L.)	14	83	258	19	1237
Craig Gallon (W.L.)	15	93	154	42	969
E. Coles (W.L.)	10	83	179	32	1012
Chisbury Farm (W.L.)	17	98	214	12	1074
Stanley Street-Porter (W.L.)	18	104	269	27	1328
B. Glendenning (W.L.)	17	94	194	28	1094
Mrs. H. Kent (W.L.)	18	116	119	47	1632
Sweet-Escott (W.L.)	19	115	232	22	1121
David Brown (W.L.)	18	115	243	21	1131
Amsden Bros (W.L.)	17	102	224	41	1231
D. Gunston (W.L.)	16	91	239	14	1308
Miss Maddison (W.L.)	18	121	154	54	824
Miss Ransford (W.L.)	14	99	265	11	1144
Court Farm (W.L.)	17	107	231	34	1125
Brown's Poultry Farm (An.)	9	82	147	27	558
Mrs. A. Stuart (B.L.)	10	68	179	21	655

JOHN H. DOWDEN, Heathfield.

Scientific Poultry Breeders' Association.

APPLICATIONS FOR MEMBERSHIP.

Jaques, Miss G., The Meadows, Warlingham, Surrey.
McLarty, Miss E., Wellingham Poultry Farm, Ringmer, Sussex.
Daley, D. L., Waterworks Lane, Farlington, Cosham, Hants.
Langley, Capt. A. L., Whyke Grange, Chichester.
Stirling, Wm., Balmashanner, Forfar.
Pinkney, A. G., Appleby Poultry Farm, Egerton, Kent.
Porter, John, 12, Brougham Street, Penrith, Cumberland.
North, Mrs. D., The Manor House, Chipping Warden, Banbury.
Price, Wm. Willoughby, Bilsdown Poultry Farm, St. Ives, Ringwood, Hants.
Walton, Miss H., Hedney Hill, near Wisbech.
Benson, A. and Sons, Newfield Poultry and Dairy Farm, Beckwithshaw, Harrogate.
Birch, John, Boundary Poultry Farm, Intack, Blackburn.
Bellows, Max, Wheatridge, Upton St. Lenoards, Gloucester.
Gosling, W., Highwood, Paget, Bermuda.
Record, Harold, Selwyn, Whitsbury Road, Fordingbridge.
Osler, E. R., The Bungalow, Wookey Hole Lane, Wells, Som.
MacKay, Mrs. J. de Prado, Lea Farm, Garston, Watford, Herts.
Butterfield, H., 12, John Street, Denholme, Bradford.
Parsons, Reg. J.,, Newtown Fruit Farm, Minstead, Lyndhurst, Hants.
Bretherton, Wm., 19, Patterson Street, Earlestown, Newton-le-Willows, Lancs.
Peerless, Capt. T. H., Brandshatch, Fawkham, Kent
Borrett, T. Lionel, Hilton, Finchampstead, Berks.
Forrest W. G., J.P., Cote Bank, North Road, Yate, Glos.
Hewett, Capt. G. G., R.N., Glebelands, Havant, Hants
Shaw, J., 29, Egerton Road, Davenport, Stockport.
Brown, H. J., Whiscombe Poultry Farm, Somerton Field Road, near Langport, Somerset.
Foster, B. P., Glendalough, Horeham Road, Sussex.
Passmore, E. Gilbert, Wormleighton Hall, Leamington.
Harrison, C., 62, Football, Yeadon, near Leeds.
Smith, F. Wain, Sycamore Farm, Hungarton, Leicester.
Watson, A. M., Roke, Millway Road, Andover.

Mackenzie, Jas. W., Trynlaw, Strathaven, Lanarkshire.
Shrimpton, H. H., The View Poultry Farm, Aylesbeare, Devon.
Hartley, Sutcliffe, 16, Earl Street, Haworth, near Keighley.
Reynolds, W. J., Loch Lomond, Torpoint, Devonport.
Hannay, Mrs. F. M., Wester Rossland, Bishoptown, Renfrewshire.

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

Minutes of the Council Meeting, held in the Master Builders' Rooms, Mount Street, Preston, on Saturday, April 26th, 1924. Present:—Mr. A. T. Walker (President), who occupied the chair; Mr. W. Hamnett (life member), Mr. J. H. Hill (Treasurer), Mr. W. Grove (Auditor), Messrs. F. J. Butterworth (Rochdale), S. Marson (Astley Bridge), J. Graham (Barrow), A. Grime (Ramsbottom), C. P. Gough (Moore), W. A. Hall (South Manchester), J. R. Hull (Poulton), H. Hall (Blackburn small holdings), T. Edmundson (Blackburn), W. Braithwaite (Kirkham), W. Kay (Lytham), J. E. Morris (Atherton), H. Hayes (Bury), J. Edmundson (Balderstone), T. Hudson (Rawtenstall), W. Fletcher (Westhoughton), J. Barnes (Haslingdon), C. Birtwell (Helmshore), J. C. Barnes (Preston), and E. Collier (Organising Secretary).

An apology for non-attendance was received from Mr. J. Wrennall (Chairman).

MINUTES.—The minutes of the last Council Meeting, held at Preston on January 26th, 1924, were read, on the proposition of Mr. T. Hudson, seconded by Mr. A. Grime; these were confirmed and signed.

Several members of the Sub-Committees who had met previous to the Council Meeting were not entitled to take part in the business, as they were not members of the Council. Mr. S. Marson suggested that in future the Sub-Committees might be appointed from the members of the Council, the first meeting proceeding the Annual General Meeting. This was seconded by Mr. W. A. Hall.

AFFILIATIONS. — Applications for affiliation had been received from Lytham St. Anne's U.P.S. and Helmshore U.P.S. (30 members). On the proposition of Mr. J. Edmundson, seconded by Mr. J. R. Hull, these Societies were affiliated.

CORRESPONDENCE. — The Secretary read a letter sent by Mr. Alfred Birch, Chairman of the Lancashire and Cheshire Federation of Agricultural Societies, asking if the Federation could see their way to present a Cup to be competed for at the Agricultural Shows in Lancashire and Cheshire for Utility Poultry. This was favourably received, with a request that the Secretary obtains more particulars as to how they would award the Cup if presented.

STOP WATCH COMPETITION.—The Secretary reported that the watch stopped at 5 hours 2463 seconds, and the second watch is awarded to the person holding ticket 11 hours 2463 seconds or nearest after these times. Several counterfoils have not been returned, and will not be acknowledged if not returned by Saturday, May 3rd. This was agreed to on the proposition of Mr. C. Birtwell, seconded by Mr. W. Fletcher.

NATIONAL POULTRY COUNCIL MEETING AT HARPER-ADAMS.—Mr. W. Hamnett gave a report of this meeting, and mentioned a scheme that was being put forward re the Registration of Laying Tests. He also spoke on the progress of the uniform scoring at laying tests which had been considered by a Sub-Committee. He also stated that another Committee had been appointed to further consider this matter. This report was passed on the proposition of Mr. T. Hudson, seconded by Mr. J. Hall.

Mr. J. Graham and Mr. J. Edmundson then asked what advantage small societies who are running tests would derive from being registered? Mr. A. T. Walker stated that all these details had yet to be considered.

NOMINATIONS OF OFFICERS FOR NATIONAL POULTRY COUNCIL, 1924-5.—The Secretary was instructed to send in the following nominations: Vice-President, Mr. Clem Watson. Treasurer, Mr. A. H. Brownson; Auditors, Col. S. Sandbach and Mr. E. Collier.

ACCOUNTS.—The accounts submitted for printing, etc., were passed for payment on the proposition of Mr. J. R. Hull, seconded by Mr. W. Grove.

SUB-COMMITTEE'S REPORT. — Laying Test. Mr. J. Edmundson reported on behalf of this Committee. He said this Committee recommended that competitors who had lost two birds in the Federation Laying Test should have their record withdrawn from the monthly report. Mr. T. Hudson proposed and Mr. J. E. Morris seconded "this be done."

This Committee had also been considering the advisability of having all the birds competing at one place in future, and proposed the Secretary make an appointment with the Lancashire Utility Poultry for the Laying Test Committee to interview them with a view to obtaining their sanction and terms to run the test at their International Test ground at Hutton. This suggestion was accepted on the proposition of Mr. J. H. Hill, seconded by Mr. W. Fletcher, and coupled with this was a vote of sympathy to Mr. Hayes.

EDUCATIONAL AND PROPAGANDA.—Mr. W. Grove reported on behalf of this Committee. He stated that all their time had been taken up with the Type and Standard questions. His Committee was meeting again on Saturday, May 10th, to see if something definite could be arrived at, to place before the next Quarterly Meeting of Delegates. This course was accepted on the proposition of Mr. W. Hamnett, seconded by Mr. W. Braithwaite. It was decided that Messrs. S. Marson, W. Hamnett ,and J. Edmundson act on this Committee.

FINANCE.—Mr. F. J. Butterworth reported on behalf of this Committee. He stated that all accounts presented for payment had been gone into and found correct. The Bank Balance was £115, which was considered satisfactory; the Stop Watch Competition showed a profit of £12.

On the proposition of Mr. C. Birtwell, seconded by Mr. W. A. Hall, this was accepted. The Secretary reported that a lot of societies had not sent their affiliated fees for 1924, and hoped they would do so immediately.

Mr. A. T. Walker said a few words about the next World's Poultry Congress and Exhibition, which they hoped would be held in 1927 in England.

The pooling of delegates' railway fares came out at 3s. 5d. per head.

This closed the business, and the meeting terminated.

E. COLLIER, Organising Secretary.

WYE COLLEGE DUCK TEST, 1923-1924.

Held in conjunction with the N.U.P.S. and the U.D.C. at the South-Eastern Agricultural College, Wye, Kent.

This test, which commenced on November 1st last, extends over a period of 48 weeks. Each entry consists of five ducks, of which there are 270 in all.

The test is divided into two sections, viz.:—(a) A small flock section (170 birds), in which the birds are not trap-nested, and in which each pen is separately confined in a grass run under fruit trees; (b) a large flock section (100 birds), in which all the birds are run together as a flock, but are trap-nested. These birds have the free range of about three acres of orchard.

In both the small and large flock sections the birds are divided into three brood classes, viz.: Runners, Khaki-Campbells, and Buff Orpingtons. Silver cups will be presented by the College to the owners of the pens which make the highest scores in each class in both sections. In order to maintain size of egg only those which weigh two ounces and over are counted in the score.

REPORT FOR SIXTH PERIOD (March 20th to April 16th, 1924).

The weather conditions during the month have been an improvement on those of last month, although still very unfavourable. Some birds are moulting. Health throughout the period has been good. One death has occurred.

SMALL FLOCK SECTION.

In this section there are 34 pens of five ducks each (total 170). Four ducks run together, and are not trap-nested, and the fifth duck is kept in a small pen by itself.

Egg Production Table.

	During month.	To Date.
Total eggs laid by pens of 5 ducks	4100.	17501
Average per duck by pen of 5 ducks	24.11	102.94
Total eggs laid by pens of 4 ducks	3271.	13835
Average per duck by pens of 4 ducks	24.05	101.72
Total eggs laid by single ducks	829	3666.
Average per duck by single duck	24.38	107.82

Mr. W. R. Partridge's pen of White Runners (Pen No. 3) still hold the leading position in the whole of this section, having made a score to date of 810 first-grade eggs.

The leading pens in the Breed Sections are:—

	RUNNERS.	Score to date.
1st.	Mr. W. R. Partridge's Pen No. 3	810
2nd.	The Molassine Co.'s Pen No. 5	618

	KHAKI-CAMPBELLS.	
1st.	Messrs. Giffard and Hallam's Pen No. 27	739
2nd.	Mr. H. B. Carrington's Pen No. 26	702

	BUFF ORPINGTON'S.	
1st.	Mrs. Wyndham Malot's Pen No. 35	529
2nd.	Messrs. Miles and Farr's Pen No. 34	527

LARGE FLOCK SECTION.

In this section there are 20 pens of five birds each (total 100 birds), all trap-nested.

Egg Production Table.

Total eggs laid during month	2229.
Total eggs laid to date	8942.
Average per bird for month	22.29
Average per bird to date	89.42
Highest pen score to date, Pen No. 4	647.
Highest individual score to date, Pen No. 44	155.

In the whole of this section the highest pen score and highest individual score to date is again made by Lieut.-Col. W. Forbes Panton's pen of Khaki-Campbells, Pen No. 44.

The leading Breed Positions in this section are:—

	RUNNERS.	Score to date.
1st.	Mr. W. R. Partridge's Pen No. 37	454
2nd	Messrs. R. A. and A. M. Johnson's Pen No. 39	389

	KHAKI-CAMPBELLS.	
1st.	Lieut.-Col. Forbes Panton's Pen No. 44	637
2nd.	Messrs. F. and H. Gwynne Evans' Pen No. 43	526

	BUFF ORPINGTONS.	
1st.	Capt. W. O'G. Cochrane's Pen No. 49	525
2nd.	Miss B. Raye's Pen No. 48	488

Competitors and others may visit the test on Wednesdays between the hour of 2 p.m. and 4 p.m. by appointment only.

F. W. RHODES, Poultry Department.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 2nd MAY, 1924.

GRAIN AND FEEDING STUFFS.—Supplies of English wheat coming forward are so small that, in spite of the dullness of the demand prices have again advanced, the average of 10s. 11d. per cwt. being 2d. higher than last week. Home-grown barley and oats are mostly quiet and unchanged, with very small supplies on offer; an advance of 4d. per cwt., however, is recorded in London for black oats, which are scarce and wanted. Imported grain is irregular. No. 1 Manitoba wheat is dearer, but other sorts show little change, while more enquiry is reported for oats, in some cases induced by a reduction in prices. Stocks of maize are rather short, but demand is not active and, with lower prices quoted for futures, spot prices are easier. Milling offals are in good request, and as supplies are of only a moderate character, prices are very firmly maintained. Middlings now average £8 12s. 6d. per ton, an advance of 6s. per ton during April. Linseed cake continues to show weakness.

MILLERS' OFFALS.—Bran (British): Bristol, £8 10s.; Hull, £7 12s.; Liverpool, £8; London, £7 17s. Broad Bran: Hull, £9 2s.; London, £8 12s. Middlings: Fine (Imported): London, £9 5s.; Coarse (British): Bristol, £9 5s.; Hull, £8 10s.; Liverpool, £8 5s.; London, £8 10s. Pollards (Imported): Bristol, £7 12s.; Hull, £6 15s.; Liverpool, £6 17s. Rice Bran: Bristol, £7 15s.; Liverpool, £7 10s. MEAL.—Barley Meal: Bristol, £10 10s.; Hull, £10; London, £10 7s. Maize Meal: Bristol, £11 15s.; Hull, £10 13s.; Liverpool, £10 10s.; London, £11 10s. Maize Germ Meal: Bristol, £11; Hull, £10; London, £9 2s. Maize Gluten Feed: Bristol, £11; London, £9 7s.

EGGS AND DEAD POULTRY.

Supplies of English eggs are only moderate, and offerings of imported eggs are not heavy. Demand and prices are firmly maintained, best Irish making 13s. 6d. to 14s. per 120, against 12s. 6d. to 13s. 6d. last week. Dressed poultry remains in steady demand at about late rates.

Week-end prices—Eggs (per 120): British, 14s. 6d., 13s. 9d.; Irish, 13s. 9d., 13s. 6d.; Danish, 15s. 6d., 14s. 3d.; Dutch, 15s. 9d., 14s. 6d.; Belgian, 13s. 9d., 13s. 6d.; Italian: 14s., 13s.; Egyptian, 8s. 9d., 8s. 3d.; Moroccan, 9s. 6d., 9s. 0d.; Styrian, 13s. 3d., 13s.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 8d., 2s. 6d.; Irish, 2s. 3d., 1s. 11d.; Others, 2s. 3d., 1s. 11d. Ducks, 2s. 9d., 2s. 6d.

EGGS.

Per Doz.—Ashford: First, 1s. 3½d.; Second, 1s. 2½d. Birmingham: First, 1s. 4¾d.; Second, 1s. 1¼d. Carlisle: First, 1s. 2d. Chelmsford: First, 1s. 6½d.; Second, 1s. 4¾d. Denbigh: First, 1s. 1d.; Second, 1s. 0d. Derby: First, 1s. 4d. Dorchester: First, 1s. 2½d. Exeter: First, 1s. 4d. Hereford: First, 1s. 0d. Hull: First, 1s. 4d. Ipswich: First, 1s. 6d. King's Lynn: First, 1s. 3d.; Second, 1s. 1d. Lincoln: First, 1s. 6d. Llandilo: First, 1s. 2d.; Second, 1s. 1d. Newport (Mon.): First, 1s. 4d.; Second, 1s. 3d. Norwich: First, 1s. 3d. Oswestry: First, 1s. 3d.; Second, 1s. 2d. Penzance: First, 1s. 3d.; Second, 1s. 2d. Salisbury: First, 1s. 4d.; Second, 1s. 3d. Shrewsbury: First, 1s. 3d.; Second, 1s. 2d. Skipton: First, 1s. 2d. Truro: First, 1s. 1d. York: First, 1s. 4d.; Second, 1s. 3d.

FOWLS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 10d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 10d. Hereford: First, 1s. 6d.; Second, 1s. 4d. Ipswich: First, 1s. 10d.; Second, 1s. 8d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 2s. 4d.; Second, 2s. 2d. Newport (Mon.): First, 1s. 8d.; Second, 1s. 6d. Shrewsbury: First, 1s. 6d.; Second, 1s. 3d. Truro: First, 1s. 4d. York: First, *5s. 9d.; Second, *4s. 6d.

DUCKS.

Per lb.—Exeter: First, 1s. 9d. Llandilo: First, 2s. 6d.

* Per Head.

EG

Wednesday, May 14th, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

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Send for a sample of our present lot, and see for yourself the class of Oats that go to make "Welco."

We have about 30 tons of these Oats to offer "in the grain" at **14s. 6d.** (in 4 cwt. lots), due about the end of this month.

We expect the next shipment will be the last for this season, and buyers who want some real high-class Poultry Oats, which are Old and guaranteed to keep, would be well advised to put a few away.

Special Terms for large quantities.

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SANDOWN,—ISLE-OF-WIGHT.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, May 14th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

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Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

IS GRIT NECESSARY?

A reader kindly suggests that it would be a great idea if we were to write a series of what he calls "provocative papers," that is, articles which are likely to provoke discussion, which "would be at once interesting and educative." The first of the series he proposes should be entitled, "Grit—Is It Necessary?" and he naively says, "You say it is not, and I don't believe five per cent. of the poultry-keepers in this country agree with you."

Before acceding to this request, it will perhaps be advisable to say that this article is written for the purpose of *inviting* discussion, not *provoking* it. One can easily write a provocative article without the least intention of being provoking, and it should be added we are discussing the question of the value of grit as an aid to the mastication of food, as to whether it is really used as the teeth of the fowl, not as to the value of its mineral content.

IS GRIT NECESSARY?

Magistrate: "You say your wife broke a plate over your head?"

Complainant: "Yes, sir."

Magistrate: "But your head doesn't show it."

Complainant: "No, but you ought to have seen that plate?"

Now obviously the plate would not be reliable evidence, for there are more ways of breaking it than over a man's head, and no one would say that the finding of a broken plate would be conclusive evidence of assault and battery on the part of a man's better half. Then why should we argue that the presence of grit in the gizzard of a fowl indicates that it is swallowed to assist in the mastication of food. We are at once up against the question, which come quickly, "If it isn't to act as teeth what is it there for? Which rather reminds one of the child who spelt cat, *KAT*, and on being told that was incorrect asked, "If *Kat* does not spell cat, what does it spell?

One doesn't want to dogmatise, but to get at the truth. There is no evidence to show that the fowl uses grit as teeth, beyond the fact that it is found in the gizzard; on the contrary, we have evidence that a fowl will remain in perfect health and production under conditions where it was impossible for it to obtain grit, other than oyster shell, which is used for shell-forming purposes. When fed with indigestible grits, such as the sharp flint grit, which is generally advised, it will often void large quantities of it, and fowls which are given both grit and oyster shell will frequently not touch the former. The crop of the bird corresponds to the rumen or paunch of the ruminant quadrupeds, while food is in the crop it is subjected to the secretions of the crop and proventriculus. This softens the grain, and enables it to be masticated or triturated in the gizzard. Fabre in "The Story Book of Birds and Beasts" accepts the view that grit is the means by which a fowl masticates its food, but he admits that digestion begins in the crop, and continues while food is passing from it to the gizzard.

Now we turn to the experiments of Spallanzani, which have been mentioned in these columns before, *as a proof that grit is used to assist in the mastication of the food.* Do they prove it?

EXPERIMENT I.

Small glass balls of a specially tough quality fed in the food to the hens. Hens opened up three hours afterwards, and most of the balls were by that time broken into very minute fragments, with all edges blunted completely, as if they had passed through a mill. Other birds killed later had reduced the glass balls to a mere powder. Gizzard walls were absolutely unaffected.

EXPERIMENT II.

Shattered window glass fragments, about the size of a pea, wrapped in paper to prevent injury to the bird's gullet, were given to a cock. After 20 hours the gizzard was cut open, all the fragments were there, but the sharp edges were gone—so much so that Spallanzani could not cut his hands when rubbing all the particles in the palm of his hand, while a minute examination failed to detect any cuts or injury to the gizzard.

There were other experiments, but these two will suffice for our purpose. What do they prove? Presumably the writer quoted them to demonstrate that grit did assist in the mastication of food, as the action of the gizzard, being mill-like, would result in their being crushed together. But if such is the case, what would be the action of the gizzard on such a hard grain as maize which had been previously softened in the crop? Would not this muscular action be sufficient to triturate the maize without the aid of grit? The experiments, to our mind, prove little or nothing, only demonstrate, in fact, the extraordinary muscular power of the gizzard.

Then, again, it will be argued that all the birds of the air eat grit—wild birds and caged birds. In their case it can hardly be necessary in order to assist them to masticate their food, for all the birds of the air hull the grains and seeds before they swallow them.

Here is a letter from a Hampshire reader. He says: "Some time ago I ran short of oyster shell, the birds having only sharp flint grit, of the usual size for adults. When the oyster shell was absent the birds consumed very large quantities of the grit, and their crops have been frequently bursting with the flints. On the dropping boards in the morning large quantities of flint and whole meal were passed into the droppings of about ten of the birds, some of which had blood mingled with it."

Now here we have a case where evidently the desire of the birds was not for grit as an aid to mastication, but for its mineral content, most probably the lime, and it will be noticed that large quantities of this grit were voided.

We are beginning to realise that a hen needs grit, not as a substitute for teeth, but for its mineral value, and we ought to realise there are grits and grit, and the old advice to give plenty of sharp flint grit was a mistake. Sharp flint grit is chiefly silica. When we buy grit we should have an analysis, just as we demand it with food stuffs. There is any amount of high-priced stuff on the market, which is of very low value. To give an example of one which is much advertised, here is the analysis:—

	per cent.
Insoluble Silicious Matter	46.8
Oxide of Iron and Aluminium	11.6
Carbonate of Lime	36.7
Sulphide of Calcium	1.3
Carbonate of Magnesia	4.2

Mark the quantity of insoluble Silicious matter, and compare the analysis with a good sample of Limestone Grit, which gives:—

	per cent.
Insoluble Silicious Matter	2.0
Oxide of Iron (constant)	1.2
Carbonate of Lime	93.4
Carbonate of Magnesia	3.2

There are some people who believe it is necessary to feed grit in order to keep the gizzard itself in working order, but we may suggest that anything which throws extra work on the gizzard, also causes extra work for the digestive organs, and any attempt to develop the gizzard by such means must result in that extra strain on the digestive system which is not desirable.

Modern Poultry Feeding.

By TOM NEWMAN.

PULLET FEEDING EXPERIMENTS AT WELLINGHAM P.F., LEWES.

At the conclusion of the seventh period of four weeks, Pen C, which has been given only 3 per cent. fish meal in the mash as compared with the 12 per cent. of Pen A, has more than maintained its lead, the nine pullets laying 216 eggs, or an average of 24 eggs each, as against the 194 eggs by the ten pullets in A. Pen B has exactly the same average for the month as A. In the control pen one pullet died after laying five eggs; at the time of writing I do not know the cause. From the first month the cost of food has been lower in the pen which has produced the greatest number of eggs. When the experiment is finished I am hoping Miss Malcolm will be in a position to tell us what is the actual cost of producing the eggs per dozen.

"A" (Blue Ring).

Ring No.	Eggs. April.	Eggs. To Date.	Amount Consumed.
121	25	100	Mash: 48lbs. Grain: 37½lbs. Total: 85½lbs.
228	17	70	
235	22	102	
249	6	129	
250	23	122	
337	21	108	
384	20	120	
388	21	51	
401	23	137	
405	16	94	
Tot.	194	1033	

Total Cost: 9s. 1.2230d.

"B" (Red Ring).

Ring No.	Eggs. April.	Eggs. To Date.	Amount Consumed.
80	24	85	Mash: 43lbs. Grain: 33¾lbs. Total: 76¾lbs.
206	—	34	
210	11	80	
217	24	120	
271	23	143	
292	23	115	
303	26	148	
508	22	98	
524	22	134	
—	—	43	
Tot.	175	1000	

Total Cost: 8s. .4554d.

"C" (Green Ring).

Ring No.	Eggs. April.	Eggs. To Date.	Amount Consumed.
213	17	133	Mash: 52lbs. Grain: 33¾lbs. Total: 85¾lbs.
229	23	137	
256	26	123	
257	25	133	
265	25	131	
273	26	134	
411	28	126	
413	25	101	
525	21	117	
—	—	74	
Tot.	216	1209	

Total Cost: 8s. 9.8289d.

"D" (White Ring).

Ring No.	Eggs. April.	Eggs. To Date.	Amount Consumed.
79	23	132	Mash: 53lbs. Grain: 34¾lbs. Total: 87¾lbs.
138	27	101	
234	22	101	
261	26	139	
285	18	45	
333	24	129	
387	23	134	
*389	5	103	
392	25	116	
394	23	71	
Tot.	216	1071	

* Died 8th April.

Total Cost: 10s. 8.6425d.

At the conclusion of the eighth week the chicks in the first experiment still maintain their lead. Although the rate of gain has not been greater than in the third experiment, which has now taken second place, the rate of development is quite satisfactory—not, of course, so sensational as in No. 1 and 4 in last year's experiments, but, as I have previously pointed out, this was not expected, as the main object of these experiments was to see if we could find an efficient combination of good protein and mineral salts which would give us satisfactory results with a minimum quantity of milk, and without any special provision for vitamins. Unfortunately a bad incubator failure narrowed our scope, and these experiments are on too small a scale to be of any real value; they will but serve as a guide to those which the Council of the S.P.B.A. hope to carry out next season on a much larger scale.

Results to end of eighth week, April 25th:—

Experiment 1.—Average weight, 1 lb. 5.12 ozs.; average gain, 4·56 ozs.

Experiment 2.—Average weight, 1 lb. 3.76 ozs.; average gain, 4.24 ozs.

Experiment 3.—Average weight, 1 lb. 4.8 ozs.; average gain, 4.56 ozs.

"THE INFLUENCE OF OILS IN FEEDING."

The appended report of the Rowatt Institute on the above subject, for the publication of which we are indebted to courtesy of the editor of the "Scottish Journal of Agriculture," is interesting and important. It appears to conflict with the views of the American experts, who are beginning to attach great importance to the value of cod liver oil, and some of their recent experiments would appear to confirm this at first sight, but the basal ration they use, if one may say so, always appears to be unbalanced; perhaps later on we shall be able to consider this:—

THE INFLUENCE OF OILS IN POULTRY FEEDING.

(Reprinted from the "Scottish Journal of Agriculture," Vol. VI., No. 3, July, 1923.)

Research work during the past few years has led to the development of new ideas on the subject of food values and the food requirements of farm animals. Much of the experimental work, however, on which some of the widely accepted modern ideas depend, has been carried out under laboratory conditions. Though the results of such investigations are of great scientific interest, the practical conclusions which are sometimes drawn from them should be received with caution. It frequently happens in research that subsequent work shows the original interpretation of an experimental result to have been inadequate. Judgment on the practical value of research results should be withheld until they have been applied and tested under practical conditions.

To enable such practical tests to be made in connection with poultry investigations, it was arranged, in the summer of 1922, to carry out a number of feeding experiments concurrently at the poultry departments of the three Scottish Colleges of Agriculture and at the Rowet Institute. The nature of the experiments to be conducted was agreed upon at a conference of the heads of the Poultry Departments. The work was then done independently at each centre. In each experiment, therefore, usually four tests were done simultaneously, and the results noted by four different observers. At the close of each set of experiments another conference was held, when the recorded results were discussed.

The chief subject of investigation during the past year has been the value of cod liver oil for poultry under conditions such as are common at a farm, and fed with commonly used feeding stuffs. Experiments were carried out to determine the influence of the oil on (a) growth; (b) egg production; and (c) the hatchability of eggs.

In some of the experiments the fuel value of the cod liver oil was balanced by adding to the food of the control pen an equal amount of linseed oil. This oil has little or no vitamin "A," which is abundantly present in the former oil, and is supposed to give it a special value. In other experiments this adjustment was not made, the ration with cod liver oil being tested against a ration with no oil.

In the earlier experiments anti-scorbutic vitamin was provided in the ration, but this was omitted later, as work done at the Rowett Institute last year proved conclusively that there is no necessity to make provision for vitamin "C" in the diet of poultry.

A mass of data has been obtained, some of which will be reported in detail in subsequent publications. The present preliminary report is intended to give only a general idea of the nature of the results obtained.

Growth.—At each station the diet usually fed there to chickens was taken as the basal ration. In no case did it contain oil. Cod liver oil was added to the ration fed to one pen; another pen of closely-related chicks, hatched at the same time, received the basal ration only, or the basal ration plus linseed oil.

At the East of Scotland College two pens, each with ten pullets, eleven weeks old, were given a basal ration of cereal grains, cereal products, fish meal, dried yeast, with grit and oyster shell. The birds had a run on bare earth with no green vegetation. To the food of one pen 1 cc. of cod liver oil per bird per day was added; to the food of the other an equal amount of linseed oil. The following figures show the respective rates of gain in weight in grams:—

	Average Initial Weight	Average Gain in Weight per bird per day. First 50 days.	Average Gain in Weight per bird per day. 236 days.
Cod liver oil	616.4	12.2	5.00
Linseed oil	613.8	11.5	5.04

At the station of the West of Scotland Agricultural College an experiment was done with three groups, each of seventy chicks. The basal ration consisted of seeds, cereal grains and cereal products, and fish meal. One group received the basal ration only, a second received in addition one-fifth, rising to half cc. of cod liver oil per bird per day. A third group received an equal amount of linseed oil. The oils were added at the beginning of the second week after hatching. The average weights at the end of forty-eight days were:—

Basal ration only	370.5 grams.
Basal ration plus cod liver oil	344.9 grams.
Basal ration plus linseed oil	367.7 grams.

In similar experiments at the Rowett Institute no increased gain in weight was obtained with cod liver oil.

Egg Production.—In these experiments the hens were enclosed in runs which allowed 20 to 30 square yards per bird. In each experiment the housing, extent of run and nature of ground were identical in the different pens. The amount of oil given varied in the different sets from 1 cc. to 55 cc. per bird per day. The results showed no evidence of any beneficial influence that could be ascribed to either cod liver oil or linseed oil. At the West of Scotland College, where the amount of oil given was 5 cc. per bird per day, the results seemed to inidcate that both oils fed over a long period had a depressing effect on egg production. The basal ration consisted of cereal grains, and cereal products plus fish meal, with limestone and oyster shell grit. The figures for pens of twelve hens each over a period of eight months were:—

Basal ration only	1,702 eggs.
Basal ration plus cod liver oil	1,493 eggs.
Basal ration plus linseed oil	1,463 eggs.

Hatchability.—Eggs from the hens in the egg production experiment were hatched to determine whether cod liver oil or linseed oil, fed to the hen, had any influence on the hatchability of the eggs. At the date of writing all the data of the tests are not available, but the results obtained at three of the centres seems to indicate that the percentage hatchability is not definitely raised by feeding cod liver oil to the hens.

It should be stated that these practical feeding experiments do not prove that fowls do not require vitamin "A." Some other experiments carried out at the Rowett Institute show that for birds kept in strict confinement, and fed on certain deficient rations, the addition of cod liver oil may be followed by beneficial results. The experiments dealt with in this report were of a purely practical nature. They only show that, for fowls fed on a ration well balanced with regard to the known food constituents, and housed under conditions such as occur in practice on a farm, the addition of cod liver oil to the ration is not followed by any beneficial results. It is interesting to note that somewhat similar results with cod liver oil have been obtained in recent investigations in pig feeding. If the ration is properly balanced with regard to mineral matter, the addition of cod liver oil does not lead to any increase in the rate of growth.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

AGE AND YOUTH.

A member writes: "While in New Zealand I had several chats with poultry-keepers there, and found them very keen. One point made especially interested me, and I have been wondering whether British breeders hold the same opinion. Three breeders told me that an old cock will never breed tip-top layers, and one of them said that he had mated the same male to the same hen for three successive seasons. In the first he bred some first-class stuff; in the second it was very moderate; and in the third it was third rate. He also stated that an old male bird had a great tendency to breed broody pullets."

I have heard something of this before, but my experience does not corroborate this view. Whenever I have had a really good male I have always bred from him as long as he would breed. However, the experience of others would be interesting and helpful. Perhaps some of our readers will come along and relate their experiences as to the increased broodiness. That seems rather curious, and in one respect rather confirms the opinion of the N. Z. breeders, for we know that with increased fecundity the tendency to broodiness becomes less, and if fecundity is lowered, it is possible that it would increase.

FERTILITY.

I am so often asked, too, how soon it would be safe to mate up a pen again after the male has been removed, so that his influence may be entirely discounted, that the report of the experiment made at the North Carolina Experiment Station some years ago will doubtless be helpful and interesting:—

"The experiment was conducted with 13 breeds. The composite collection of eggs were saved for five days, and placed in an incubator. Eighty-three per cent. were fertile, and of the fertile eggs 80 per cent. hatched. The cocks were then removed. The test of all eggs laid by all flocks after removal of male birds was as follows:—First day, 85 per cent. fertility; second day, 91 per cent.; third day, 82 per cent.; fourth day, 71 per cent.; fifth day, 65.2 per cent.; sixth day, 50 per cent.; seventh day, 63 per cent.; eighth day, 53 per cent.; ninth day, 29.4 per cent.; tenth day, 33 per cent.; eleventh day, 37.5 per cent.; twelfth day, 0.0 per cent. fertile, and all eggs after this date were infertile.

At the expiration of ten days from the Zero point the males were again placed with the birds. These males were returned at night, so that the first day counted would have each male with the flock the entire day. The following is the result of the re-mating:—First day, 0.0 per cent. fertility; second day, 33.3 per cent.; third day, 66.6 per cent.; fourth day, 70 per cent.; fifth day, 70 per cent.; sixth day. 88 per cent.; seventh day, 83 per cent.; eighth day, 80 per cent.; ninth day, 84 per cent.

HOW FAR CAN ONE IN-BREED?

The following is taken from a letter from a correspondent:—"How far can in-breeding be carried, line-breeding, and when should one introduce new blood?"

This is a question which is continually being asked, and it has been answered many times in these columns. Let us remember, in the first place, that in-breeding is line-breeding carried to extremes. There are three systems of in-breeding—the sire upon his daughters, the dam to her sons, and brother to sister. Obviously we cannot carry it further than this. What many of our readers do not appear to appreciate is that the success or failure of in-breeding does not depend on the actual relationship, but upon the quality of the stock which is in-bred. It is quite conceivable that *brother and sister of exceptional quality* may throw stock equal, if not better than themselves. On the other hand, if they were only of average quality, it is certain that their progeny would on the average be considerably poorer than themselves, and if really poor, of course they would fizzle out in a generation or two. The object of in-breeding is to " fix" certain desirable characters. The word "Fix," although so often used in this connection, hardly, I think, conveys what is actually meant. We start with two exceptional birds, possessing all the desirable qualities we are after. What we are really doing by this mating is *excluding undesirable characters, which may prove dominant to those we desire*.. In view of our newer knowledge of Genetics it is more than probable, particularly as regards egg production, that both line and in-breeding will not only be found unnecessary, but really inadvisable. What I mean is that birds of widely different strains may be mated without causing wide variation, provided we know they are " pure " for certain genetic characters. I do not think in-breeding has been very greatly practised by breeders of highly fecund stock, although it has been the practise of some writers to hint that this has been the cause of any weakness exhibited in utility stock, especially the loss of size, but this is a mistake. It may have been so in a few cases, but they are very few. As to the question of when to introduce new blood, that is purely a question of observation on the part of the breeder. One cannot lay down a fixed rule, and say: "Three generations from now you must introduce new blood." He must do it at the first sign of degeneration, which may come sooner or later, as his selection of the stock birds has been good or bad, for it is essential that individual selection should never be lost sight of. Probably the first sign of degeneration would be lower fertility. The great objection to in-breeding and line-breeding, as systems of breeding, to my mind, is that you have to scrap many good birds, which if bred on ordinary lines would be valuable, for however good a bird may be you cannot use him if he shows any weakness or defect. As systems of breeding, I would not advise anyone to practise them, especially if heavy egg production is the object, but if you have *two or three really exceptional individuals, then don't be afraid of in-breeding. Exceptional,* however, doesn't mean a mere record of eggs laid.

To avoid delay Advertisements should be addressed to the Advertisement Manager, " Eggs," 94, Farncombe Street, London, S.E.16.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymoar Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

" BODIES " for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through " EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (**NOT from Capt. Leeney**).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

G. M. (Shrewsbury). You ask what are the latest dates which I consider it profitable to hatch the various breeds of fowls. You must remember in the first place that what will apply to a breed will not always apply to a variety or strain—it depends a great deal how selection has been made. Generally speaking, Langshans, Orpingtons, Sussex, and Rocks, before the middle of March; Wyandottes and Barnevelders not after the last week in March; Minorcas and Houdans not after the first week in April; Campines, Anconas, Bresse and all varieties of Leghorns not later than the first week in May. (2) As the chicks are not thriving, it would be advisable to move them to fresh ground at once, and just see there is no overcrowding. At the same time I would very thoroughly limewash the house, adding some carbolic acid to kill any insect life; it is not a good plan to rush stock of any kind into a second-hand house without first giving it a thorough disinfecting.

F. S. T. (Newcastle). I think your chicks are feathering badly because your feeding is wrong, and the samples you send are of inferior quality. Try them on the following formula :—2 measures of broad bran, 4 middlings, 1 Sussex ground oats, 1 maize meal, ½ measure meat and bone meal. Mix this well and add one teaspoonful of cod liver oil to the pound of mash. See they have plenty of fresh green food, and that the house is light and well ventilated, and there is no overcrowding. You must get a better sample of ground oats than you are using.

Corney (Tavistock). If the birds in this house are constantly suffering from colds, and in your other houses this does not occur, we can only conclude the cause is bad ventilation or a direct draught. You should be able to decide which it is, better than I can. (2) I am inclined to think that the weakness is inherent, especially as you had such a number of addled and infertile eggs; your feeding does not appear at fault, but I would try the addition of one teaspoonful of cod liver oil to each pound of mash. Move them as often as possible to fresh ground, and see there is no overcrowding.

Toe-Pick (Suffolk). There have been very few cases of toe-picking reported this season so far, it is far more common when we get a bright sunny spring. The cause is merely the habit of chicks picking at anything bright, and it is very much more prevalent with the yellow-legged breeds than with others; the sun's rays on the yellow legs begin the mischief. If an outbreak occurs with other breeds, it is usually due to chicks tearing their toes on something sharp or on the wire. The best preventive is to bluewash the brooder house, windows and all. (2) Sample is not "Sussex" ground, but would answer the same purpose, and is good value at the money. (3) The fact that the cockerel's lobe has been torn off will not matter in the least; his progeny will not be affected in any way, you may just as well ask whether a dubbed Leghorn cockerel will breed sons without a comb. Acquired characters are not transmissible. Perhaps you would hardly call this a "character" though.

L. K. (Lowestoft). There is nothing in the samples of food which you send which would explain the trouble, and I can only assume that the house scraps are the cause of it; it is certainly nutritional. I cannot, of course, say what the actual ingredient is; it does not indicate salt poisoning. There is always a danger in using house scraps, especially when they come from other people's houses, as they may contain anything from furniture polish to Yorkshire Relish. (4) Your Buff Rock chicks were a little late hatched, and you must not look for eggs from the pullets until the end of November. (3) If your neighbour lost several chicks for four days, and then lost no more, it is unlikely the cause was B.W.D. It was probably due to chill, especially as the deaths did not begin until the chicks were ten days old; the white discharge from the vent is often a symptom of chill.

M. S. (Blackburn). There is evidence that eggs produced on a ration in which maize is fed as the sole grain food are heavier than those when only wheat is fed as the grain. Eggs are generally heaviest in February, March, and early April. The weight of the yolk increases as the fowl matures, so do all other parts of the egg, but the yolk especially so. As a rule the first and last eggs of a clutch are the lightest. Yes, if a hen is underfed, the eggs would certainly lose size. (2) Your winter records are very satisfactory, and I do not think the ration at all forcing; it is no sort of test if the hen is underfed. There must be something to produce eggs, they cannot be produced on a mere maintenance ration. (3) If many double-yolked eggs were produced, I should think it a sign that the ration was too stimulating. (4) Malt dust is simply the sweepings of the kilns; it has a very low feeding value compared with malt culms.

E. B. (Skipton). The condition of your birds has nothing to do with the feeding. They are suffering from "Favus" or White Comb as it is sometimes called. It is very contagious, and is caused by a low-grade fungus which appears in threads and reproduces by spore formation. It is easily checked in the early stages, but it will rapidly spread over the body if neglected. It would be advisable to remove and burn all the litter, thoroughly limewash the house, and disinfect nests, feeding troughs, etc. If you soak the crusts with a 2 per cent. solution of Izal the birds should soon be right again. (2) A comparison of the food units of the different foodstuffs is not a reliable guide as to their nutrient value. Palm kernel meal has the same number of food units as middlings, but it is a very inefficient substitute, as we found during the war. (3) There is some evidence that the number of eggs laid affects the sex of the chicks, but one cannot say that it is reliable; it would need a good deal of investigation, and a careful examination of all other factors, before anything definite could be said.

Pompey (South Hants). Please send further details. I cannot possibly advise you as to the cause of your chicks "hanging fire" unless you tell me something more than the bare fact. There may be several reasons—bad feeding, or bad foods, overcrowding, foul ground, insect life, or brooder management, or even the parent stock may have been at fault.

A. D. (Cranbrook). The samples you send are all good, and the middlings at 10s. are worth the additional money. The ground oats at 13s. 6d. per cwt. are splendid value. This is white maize meal. Its advantages over the yellow are stated to be that it contains the Vitamin "A." There have been no feeding tests to demonstrate which is the better, the white or the yellow; but I should not hesitate to use such a satisfactory sample as this at the price. The fish meal is a very good sample indeed. It is not made from red fish.

D. H. (Biggin Hill). This is only a very moderate sample of ground oats, and they are not "Sussex ground," not worth more than 14s. cwt. The middlings are very inferior; not good enough to use. We have received a much better sample of ground oats at 13s. 6d. cwt. from Cranbrook this morning. None of the samples you send are particularly good. The bran is fair. You really must do something better than this if you are to get good results. If you refer to the annual Register, you will see a list of sex-linked crosses (page 46), which will give you all the information you require. White Leghorns cannot be used in any sex-linked cross.

N. F. (Burton). You would be certainly wrong if you used the single comb White Wyandotte cockerel to mate with the hens next winter, in spite of the fact that he is the finest bird of all. This would result in a large percentage of the progeny being single comb, and you would have the greatest difficulty in breeding it out of your strains. True, you say you only keep your birds as a hobby, and not for show, but there may be a time when you would like to sell sittings of eggs, and you would find your customers would very much object to a large percentage of the resultant chicks coming with single combs. You had certainly excellent results from your pullets. Whatever you do, do not mate this single-comb cockerel. He is only fit for the pot, or at least to send to some breeder of cross-breeds.

POST-MORTEMS.

V. W. X. (Hants). A pale-wasted liver was at the bottom of the trouble, and a great deposit of fat inside. I should say a small dose of calomel, followed by salines.

G. H. N. The W.L. hen was not the subject of tuberculosis, but of peritonitis, caused by free egg-material in the peritoneal cavity. She produced faster than she could pass eggs into the duct.

C. A. G. They were all pneumonia cases, but one would have otherwise died from decomposition of the yolk, which was purplish brown, and the sac greatly distended. There were no signs of B.W.D.

W. P. A degenerate liver had ruptured, and the bird died from internal haemorrhage. The same dietetic causes which led up to this will probably account for others.

E W. P. You are mistaken in supposing that the last egg was "the finish of a long sequence," for there were three full-sized ones and a good clutch behind. Apoplexy of the ovarium was the trouble, and this would very likely have been precipitated by a ration in which beans formed a high percentage.

J. E. H. R. If you had not killed this hen, she must have died. It was quite a remarkable case, inasmuch as three extra large but shell-less eggs had come through a rift in the uterus, and one had broken and flooded the abdomen. There was no sign of peritonitis (which is what would have followed had she been left alive). The other two eggs weighed respectively two and three-quarter ounces, and two ounces and three drams. There was a group of yolks behind, fully ready to enter the duct. Such over-production calls for a halt. A day of fasting and a few saline doses before "that Kreuschen feeling" can be restored to hens similarly fed.

J. E. H. R. This chick had pneumomycosis, the infectious pneumonia caused by the spores of a widely distributed fungus (Aspergillus fumigatus). It had also the pale or nearly white pancreas that I have learned to associate with rickets; indeed, this young bird had already a curving breastbone. (2) You might have lanced the skin more boldly or pulled it open again without the least risk. When capons are made, a few will have the wound seal up in a few hours, and imprisoned air lifts the wing, and the seal has to be broken by pulling apart, and no more trouble occurs. Birds breathe all over, having several air sacs, and also breathe into their large bones. I would like to illustrate these if that long-looked-for half hour to spare comes.

"E. B." Infectious pneumonia was what ailed the chicks. It is very unsatisfactory to me to make reports of infectious disease which cannot be read for ten days from the date of writing, but I am complying with your instructions to the letter—not the letter by post.

M. P. I. No, neither of them had B.W.D., but all had failed in digestion. The yolks were not absorbed, and the heart and lungs were congested. I have done very well on the dry chick feed mentioned in years gone by, but Mr. Newman's prescription is better.

H. LEENEY.

BROODING AND A BROODER.

By M. S. TAYLOR.

For the delayed appearance of this article I have already apologised to our Editor, but would like also to apologise to my readers. I have been up against it with two or three members of the "flu" germ family, and as a result of coming off second best I've been in bed, and as fellow sufferers can testify, been feeling far from writing articles.

Let us turn then to the work on hand.

The voluminous edifice depicted in my rather inartistic diagram is an outline of the brooder house (sectional) on this farm. The congested area in the middle, at the bottom, is the brooder, or at least are two of the brooders that all the noise is about.

A. is the top of the hover, the lid; it is, roughly, 3 ft. wide by 6 ft. long, and is split longitudinally up the middle, so as to form two close-fitting halves. This is merely for convenience in getting at the chicks inside. Between each hover there is a bulkhead, on to which supports are nailed to hold the lid up. (One would be led to believe from my diagram that the law of gravitation didn't exist.)

B. is the end view of wooden frame, having for its bottom a sheet of gauze. It is on this gauze that the chicks lie. The shaky lines (oh, for the touch of Rembrandt) represent a double thickness of curtain nailed on the lid A., and drooping down over the gauze bottom B.

My wife made these curtains (you can tell your wives) from thin meshed bran bags, even the double thickness of which does not exclude fresh air, but only breaks draught.

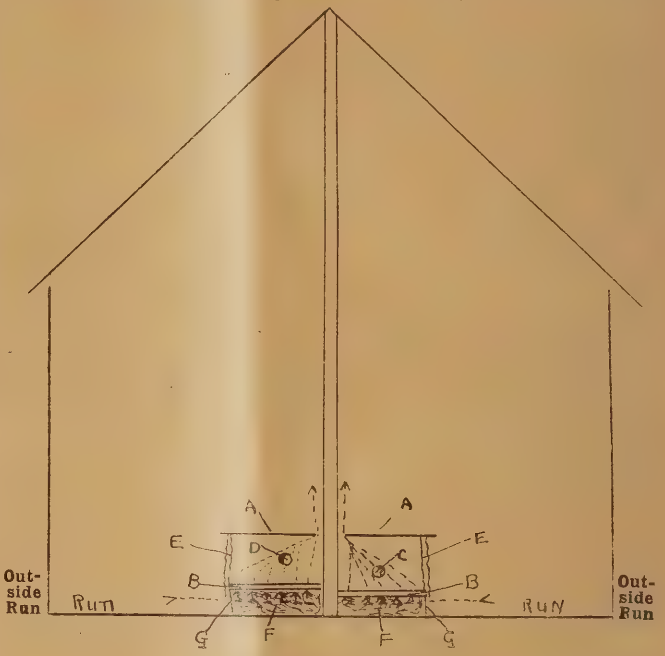
D. is the "flow" hot-water pipe, while C. is the "return" hot-water pipe. In this brooder house these two pipes are old 2 inch gas pipes. The top of the litter, lying on the gauze trays, should be 3 inches from the underside of the pipe.

G. is the corner leg of the tray B., which stands on four legs. It is necessary to note here that in building a brooder house such as this each gauze tray is on a different level from its neighbour to suit the requirements of the rise and fall of the pipes. From the leg G., then, to its neighbour at the other extremity of the tray, are nailed strips of wood about half an inch apart. Through these apertures comes the necessary air to the chicks. It stands to reason that if all the cold air which could come through these spaces was allowed to reach the chicks in a direct unimpeded fashion the result would be pneumonia for the chicks, so the space between the bottom of the gauze tray B. and the floor of the brooder is packed with straw (F.), which regulates the inflow of air. In my work of art you will see dotted lines showing the direction of the air, both inlet and outlet. Of course, as mentioned previously, there is always a supply of air coming through the curtain E.

Once or twice at the most a week the litter is brushed back from the gauze trays and water is poured down through on to the straw, this naturally giving a beneficial moist atmosphere to the chicks.

Perhaps, from what I have said, readers will gather that, although simple, this brooder is really good. You get the heat with ease, and I'll guarantee there is no other brooder in existence where there is a greater amount of fresh air circulating among the chicks, and **fresh air is half the battle in chick rearing.** Please don't confuse fresh air with draughts, and note also, how by the use of loosely packed straw and bran bags all draughts are eliminated in this brooder.

It will be noticed in this brooder house that we utilise both the flow and return pipes, having each heating a set of brooders. The usual practice is to have both flow and return pipes one side of the house and both under one hover. In our brooder house there are seven hovers 3 ft. by 6 ft. on each side of the middle bulkhead. In each of these large hovers we **only** place 150 chicks, making the capacity of the house 2,100 chicks. I have incorporated the ideas described above with the brooder described by Mr. P. L. Johnson in our Year Book of two, or perhaps it was three, years ago. If you care to make this oil lamp brooder to Mr. Johnson's measurements and then "shove" in my ventilation and moisture ideas, I can assure you you will have an exceedingly useful and satisfactory brooder.



BEGINNING WITH BEES.

By E. D. MADOC.

The first thing to do is to learn something about the bees, even before you get them. Practical experience is most important, but practical mistakes cost a lot, and are apt to tip the balance sheet in the wrong direction, if there are too many of them, so read up the subject a bit first.

There are several English bee journals, two or three of them having a considerable circulation. One or more of these should be taken, and one of standard English books on bees purchased. One or two of the big American monthly bee journals will be found useful, and several of the American bee books are very good. If only one book is required, the "A. B. C. and X. Y. Z. of Bee Culture," by Root, cannot be beaten. It is rather expensive, but it covers the subject very fully, is thoroughly up-to-date, and from its nature as a compilation of the views of the foremost authorities on their particular branch of the subject, gives a very well balanced view, without that bias so often met with in books written by one individual. Any of these publications, British or American, can be obtained from any bee appliance dealer.

A chat with a neighbouring beekeeper is very helpful, and if you can watch him manipulating his stocks, you will feel much more at home when the time comes for you to manipulate your own.

Hives should be of as simple construction as possible. It is very important that the hives should be of the same size, so that parts of one hive are interchangeable with those of another; the importance of interchangeability of hive parts is seldom recognised by the beginner, but it is of far more importance for instance that the type of hive chosen. The details of the hive such as the number and size of frames, are comparatively unimportant. Correct manipulation will rectify any faults in this direction. The best time to get the bees undoubtedly is in the spring or early summer. The dangers and difficulties of wintering are over, and the near future holds hopes of a profitable honey crop.

Bees are best purchased in the form of an established stock or swarm. A good stock should get to business at once, and possibly give a swarm as well, but it is a rather expensive method of starting, and stocks are not generally so easy to purchase as swarms. It is generally possible to get swarms from some neighbouring bee-keeper, which will be much cheaper, and generally a more satisfactory way of starting than any other.

Of the three or four races of bees fairly common in England, the Italian is undoubtedly the best, and if the swarm purchased is not Italian, it will be best to purchase a pure Italian queen to replace the swarm's original queen.

Before Isle of Wight disease became widespread, the Italian had a serious competitor in the native British bee, but the latter race is very susceptible to Isle of Wight disease, and has, in fact, almost been wiped out in its purity, although there are still a lot of hybrids about.

CARRYING ON.

By Lieut.-Colonel F. S. MACRORY, D.S.O.

I started to write an account of my later proceedings with the hen farm last autumn. Having written a few pages I lost the manuscript for some months, picked it up again some weeks ago, wrote a few more pages, and finally lost it for good. I shall probably lose this one before I finish it, but in case I do not, and if ever it sees the cold blackness of print, I will endeavour to give a truthful record of my experiences with the commercial hen, during the last year.

I write this in the form of a diary, so that I may, if possible, avoid the common error of putting the cart before the horse.

AUGUST, 1922.—Spent a dusty and dishevelled morning selecting proposed breeding hens for 1923. Some 800 White Leghorn hens to pick from. Hogan test still believed in on this pre-historic farm, so used this as the basis of selection. About 400 ladies eventually picked for the harem, and placed in a large house, 80ft. x 20ft.

JANUARY, 1923.—Introduced the gentlemen—20 in number, bought from Mr. Newman (to whom, I fancy, the very name of Hoganism is anathema, so I reckon the gentlemen were not hoganised, but had to rely entirely on their attractive faces and bright, intelligent eyes!)

FEBRUARY, 1923.—Began to collect breeding eggs. Numbers of same rather disappointing, about 40 a day.

END OF FEBRUARY, 1923. — Began the old, monotonous, weary round of incubation.

INCUBATORS USED.—Four "Double Gloucester," each holding some 450 eggs, when completely charged. To those unfamiliar with the "Double Gloucester" (who might otherwise confuse it with a cheese!), I must explain that the lower half of this ingenious machine is the ordinary hot-air Gloucester. The upper half, however, is a hot-water machine, simply sitting on top of the original Gloucester. A special form of heater is used, very cleverly designed, whereby the waste heat from the lamp is utilised to heat the water in the tank of the upper machine. This incubator has practically no ventilation of any kind, as it is not intended to do the actual hatching in it. The eggs spend the first eleven days in the upper berth, and then come down to the hot-air machine for the final ten days, whilst the upper incubator carries on the good work with a fresh lot of eggs.

My results were not very good, varying from 70 per cent. to 38 per cent. chicks hatched to eggs put in. (I tried all the ideas advocated from time to time in "Eggs," such as frequent turning, no cooling, and so on, but am bound to say that when I adhered rigidly to the makers' instructions, I did rather better than by any other method). Yet I know people who consistently get 75 per cent. to 95 per cent. hatches from similar machines, and one of these users purchased his eggs from me. It is beginning to look as if temperamentally I am unsuited to be an incubatist, but I am still carrying on.

MARCH, 1923.—Brooding operations started. My old friends, the four "Acme" anthracite hovers, relied on to see me through this "ticklish" performance. These brooders are quite good in many ways. Perhaps their chief drawback is that, owing to the constant attention necesssary to keep the fires going nicely, they do undoubtedly shorten the operator's life considerably. This, of course, may be an extra advantage in many cases—though personally I am not convinced that it is so in mine.

MANAGEMENT OF CHICKS.—This was based on Mr. Newman's excellent scheme described in the Register for 1923-24. In my case, however, the chicks had perforce to be kept absolutely intensively for the first three or four weeks. *Results*: Excellent for the first ten days or so, then—leg-weakness galore. All the early broods went down like flies, as they reached the critical stage. Marmite, Easton's Syrup, Parrish's Food, many other things were tried, but nothing checked the rot, and the chickens continued to "cross the bar" with mournful regularity. (The writer also "crossed the bar" on several occasions to drown his sorrows in strong water, but of this anon).

As a matter of fact nothing cured the leg-weak brigade but the advent of Spring, and plenty of fresh green food, combined with weather conditions, which made it possible for life to be supported out of doors. My critics will say "You should have let those chickens run out on mother earth from the start." But those critics probably live in the South of England, where the spicy breezes blow soft, and every prospect pleases, and only man is vile. I live in the North of Ireland, where the weather rivals man in vileness. I have frequently noticed that people who reside in the tropical parts of England can evidently get all sorts of luxuries for their fowls, without the slightest difficulty—may talk glibly about things like "green food, ad. lib.," in the depths of winter, and about putting dry earth in the dust boxes and dropping boards. *Dry* earth, mark you. There is nothing dry in the North of Ireland for very long, I can assure you (even this article, I sincerely trust, will conform to the universal rule).

APRIL, 1923.—Stopped incubating, got all my young birds into little "Ideal" Coops, three feet square, and moved them into the hay-fields.

MAY, 1923.—Lost all my young chicks in the hay.

(*To be Continued*).

Utility Duck Club Notes.

HUGH B. CARRINGTON

There are so many subjects which might be dealt with at this season of the year that it is little difficult to know to which of them to devote my space this month. The solution of the trouble would appear to be to deal in a general way with the kind of questions which my post bag brings me almost daily from duck-keepers.

Several write to say that for some mysterious reason their ducklings are dying from no apparent cause. Some of my correspondents have given me very careful and detailed accounts of their management, and in one case I am almost certain that the trouble lay with the period of incubation. The ducklings did well for a time, and then died off suddenly in a most heart-rending way; one part of the letter tells me that during the period of incubation the temperature, at times, ran up very high—the figure quoted was 107 degs.

I have written to enquire whether the result was a premature hatch, for while experimenting one season I brought about such a hatch, with unfortunate results, similar to the disaster just reported to me.

Much has been written about artificial incubation, but it is as nothing compared to what remains to be learnt, and then written upon. Hitherto, aware of my own ignorance, I have shrunk from writing on the subject, but there is one piece of advice I would like to give, if it is desired to incubate duck eggs artificially. An incubator should be bought from a firm which has actually experimented with duck eggs, and published a detailed statement of how it should be managed throughout the hatch, stick to that method till you can, from your own experience, find out improvements in it. Generally speaking, I still follow, almost identically, the same method which has been employed here for the last four seasons. With one of the breeds I keep it has been uniformly successful, though it must be admitted that results with the other breed have been far from satisfactory, mother hen being the only certain means to obtain good results in this case, and even mother hen can make a nasty mess of things sometimes.

There is a great deal more which could be said on this subject, but I must not crowd out other important matters.

Another question which several people have asked me lately is, When can the ducklings safely go on water, or wet grass?

The answer to this is very simple, and can be put in the form of another question. How soon will a duck take her brood on to the water, in nature? Just as soon as that can the artificially-reared duckling be allowed to take the same risk, IF, and it is a very big IF, it is possible to give the little things as nearly as possible the same treatment they would receive from their mothers. To make my meaning clear, I must be forgiven for quoting the management of ducklings on my own farm. As everyone knows, it has been atrocious weather for rearing, bitterly cold winds, very little sun, and a great deal of hail, rain and other unpleasantnesses. My early-hatched ducklings are moved from the incubators with every precaution to prevent chills whilst being transferred to the brooders. Immediately after the first meal they are tenderly guided back to the brooders, and shut in there to dry and warm themselves; as long as the weather remains cold and bleak, or until they themselves have the sense to do it without being compelled, the same process is carried out. They are **never** allowed to remain wet and chilled. This is exactly the treatment mother duck or hen would give them, and it is an absolute essential to successful rearing.

Now for treatment under better weather conditions. At Easter time, when the sun was shining and summer seemed really about to burst gloriously upon us, I had a brood of about sixty ducklings of some ten days old; they were all out in their run, and not only were they swimming about their duckling baths, but they were actually diving completely under the water, submarining, as a pupil here called it, whilst others were hunting imaginary crustaceans with only their feet and tails visible above the water. The result should, according to old ideas on the subject, have been almost instantaneous death, for it has been said that ducklings should not be allowed swimming water till they are feathered. Imagine educating a mother duck to such an idea; rather a hopeless task, I fancy.

For several seasons now I have agreed with mother duck, and in the instance given above it did not surprise me to see the ducklings flourishing all day long, and never a sign of trouble among them; they were simply doing what instinct taught them, to do, and instinct is seldom wrong. In this case the sun and the warm air did what the brooder had had to do in the bad weather.

One word of warning, it is essential, whatever water vessel is used, that it should be very easy for the ducklings to get out, whether it contains much or little water. This is of the first importance, and will save many casualties.

One more word of warning about ducklings. Perhaps it is not too optimistic to expect that by the time these notes are published, we may be enjoying some really hot weather. Shade MUST be provided for the ducklings; if there are no trees, artificial shade is absolutely necessary. If brooders are being used the heat must be kept well down, for sun or too great heat will quickly result in apoplexy, for which there is no cure.

Much of what I have already written has been dealt with in the Club Leaflets, but the points are of such importance that I cannot refrain from emphasising them again and again, and can only hope that some readers who are not members may join, and obtain fuller information than can be given in these notes.

No doubt too much space has already been taken up, but it may interest readers to know that the question of preserving duck eggs is being investigated. I am particularly indebted to two members who have written me on the subject lately, and I shall hope to write fully later on about the matter. In the meanwhile, I will only say that duck eggs can and have been very successfully preserved in considerable quantities.

A very full meeting of the Council of the Club was held on April 1st at the offices of the N.U.P.S., but as the matters discussed have not yet come to fruition, it would be anticipating matters to make a full report at the moment.

Correspondence.

THE UTILITY RED SUSSEX CLUB.

To the Editor of "Eggs."

Dear Sir,—I notice in the Sussex Club Year Book the Rev. H. Mayhall, in his Editorial, devotes two paragraphs to the Utility Red Sussex Club. I would be greatly obliged if you would allow me space in your valuable columns to give the reasons and for what purpose the club was formed.

The Rev. H. Mayhall really gives the reason when he says: "The Parent Club has the interest of all four varieties at heart." A club that has four varieties cannot advertise, or help one particular variety at the expense of the others. For about twelve years the Parent Club has been sitting on the Red Sussex, and it has not hatched yet. Had this variety a Specialist Club behind it, it would have hatched long ago, and been, as it deserves, the most popular Red bird in the country.

It is the best table bird, an excellent layer, and a magnificent show bird in one—hence the word "Utility." We are not egg-maniacs. By "utility" we mean the best general purpose bird.

The aims and objects of the club are to make the Red Sussex more generally known, to give prizes, and guarantee classes for both Utility and Exhibition, and also keep (and if possible) improve its present all-round excellence; in due course we hope to place the breed in the position it deserves. The best and most popular all-round profit-giving bird in the kingdom.

Yours faithfully,

P. B. ADAMS.

Hayward's Heath.

VACCINES AND SERUMS.

To the Editor of "Eggs."

Dear Sir,—There has been a lot of controversy over Vaccines and Serums in "Eggs" during the past few weeks. Surely the makers of these Vaccines and Serums can give documentary evidence (in confidence to you) proving that cures have been effected by their use. I can send you letters proving that they have been anything but a success. In fact the reverse.

In last week's "Egg" "Subscriber's" letter says that he can cure roup in three weeks *except eye cases.* Now considering that the closing of the eyes is one of the earlier symptoms of roup, all I can say is that I need only two, sometimes three, days to get the birds' eyes open and clear, and not nearly three weeks to effect a complete cure of even severe cases of roup.

Yours truly,

SIMPLEX."

VACCINES AND SERUMS.

To the Editor of "Eggs."

Dear Sir,—With regard to your Editorial on this subject in the current number of "Eggs," may I suggest, merely as an interested reader, without any axe to grind, that the vaccine used in the experiment quoted from the report of the Poultry Farmers' Week, cannot have been up to proof? If it had been a decent sample surely it would have wiped out the flock? When "roup was present in the flock" was it not, to put it mildly, very extremely unwise indeed to use VACCINE?

Is there not some confusion of thought on this matter? The use of VACCINE seems to be pretty dangerous. I don't see how you are to be certain that the disease is not present. I shouldn't care to risk it without knowing more about it than I do now. But SERUM, if considered calmly as one method among many of treating a sick bird, may be found to have some advantages in certain cases.

It probably has disadvantages, too. I don't know because I have had no experience. I only wish to point out that VACCINE and SERUM, as a preventive and cure respectively, should never be confused. They are absolutely different.

I am, Sir, yours faithfully.

A READER.

Our correspondent should remember that this experiment was conducted by a Doctor of Veterinary Medicine, who would surely appreciate the difference between a Vaccine and a Serum. In every case of failure we have cited, we have been met with the reply that the vaccine was badly prepared, or "not up to proof." This seems to us only to emphasise its unreliability. One can hardly say it was unwise to use a vaccine when roup was present in the flock; it does not follow that every bird was suffering from the disease. The fact remains that the vaccinated birds suffered more than the unvaccinated. (Editor.)

THE FEEDING OF TURKEY POULTS ON DRY MASH.

To the Editor of "Eggs."

Dear Sir,—*Re* feeding turkey poults on dry mash. Your correspondent, Arthur Barker, does not mention if he supplied any "liquid refreshment" previous to the time they were given curds.

This would appear to be an important point, as I have always understood it to be a *sine qua non* of turkey rearing that no water should be given until the poults are about a month old, i.e., when feeding with wet mash.

Yours faithfully,

L. G. STEDMAN (Capt.).

DISEASES OF POULTRY.

By Capt. LEENEY, M.R.C.V., M.S.A., A.P.S.

FOUND DEAD.

More than half the subjects received for post-mortem examination are reported by the senders to have been found dead. On the dropping board, in the nest, near the house, but very rarely at any distance from home or the nightly roost which to the fowl represents home. *Inter alia*, it may be observed that all animals, from *homo sapiens* downwards, have an instinct which draws them home before they die. There is no day in the year (Sundays barred) when I do not open subjects unsuspected of any ailment, but found dead. The examination of thousands and the passages of the years leaves me still astonished at the fearful lesions, the absolutely fatal structural changes, as well as acute disease present in birds that have responded to the dinner bell, and appeared to the ordinary observer to be all right when last fed, yet discovered dead or moribund. One conclusion can, I think, be safely drawn, and that is that with the small intelligence of the hen there is a small degree of capacity to suffer pain.

What sensation there is, appears to reside in the extremities and in the skin, and is given only for protective purposes. I have often seen capons when released from the table consume their own organs, of which they have just been deprived, and take a good square meal as if nothing had happened. They certainly flinch when one cuts through the skin over the ribs, but the bird takes no notice of the severance of the intercostal muscles, or the introduction of an instrument with which to grasp the testis.

The leathery tongue has no great amount of sensation, we may suppose, because a fowl with a foul growth (no pun) in the mouth, will feed so long as not mechanically impeded from swallowing, or unable to prehend food. Speaking of these diphtheritic deposits in the mouth, the victim will tolerate quite a large growth, and for a long while if it remains stationary in size, but a growth within the larynx is often the cause of a bird being found dead. Poison is suspected, and if the examiner does not observe a careful routine, invariably cutting through the angles of the jaws and exposing the opening of the larynx to view, he may well miss the true cause of death.

A deposit in the larynx no bigger than a pin-head to-day, will to-morrow half fill the lumen without apparently affecting the bird, and the day after so completely block the air passage that it is found dead. There would seem to be something in the moist situation and passage of air over it that promotes very rapid growth, such as does not take place in the closed mouth. While a trickle of air can pass into the windpipe the bird can get enough air to keep on its feet, but the actual closure is followed by a quicker death than any method of palate cutting or "necking" we have yet discovered.

Many "found-deads" are the victims of apoplexy, either of the brain or lungs, and this is not surprising, having regard to the artificial life and habitual overfeeding which is a necessity of our system of overproduction of eggs. Apoplexy or haemorrhage into the lungs, means suffocation immediately if both lungs are affected, but more often it is only one, and the bird may have been observed to be giddy and fall over. The owner again suspecting poison, and, like the man who found tares in his wheat, says to himself "an enemy hath done this." Other and more extensive haemorrhages which would not be classed as apoplexy are of frequent occurrence. One of the subjects opened to-day had long and degenerate liver, as soft as the pulp of a ripe medlar, but it held together until infected with tuberculosis, which was chronic in other organs. The tubercles were tougher than the substance of the organ, and they simply disintegrated it, and the blood formed a great clot occupying all the abdominal space available. Ruptured liver is the most frequent cause of death from haemorrhage; indeed it is the most frequently diseased organ of the body, and for various reasons.

Ruptured oviduct also induces sudden death in the majority of cases, and if not sudden, then with but a short illness. There can be acute peritonitis or inflammation of the lining membrane of the abdomen without the poultryman observing anything amiss. A man or beast similarly affected suffers agony, but a fowl may have the disease advanced so that the bowels are all tied together with adhesions, and not attract any notice.

Forming eggs not infrequently die on the stalk, or what is the equivalent to an umbilicus. They are found in an apoplectic state, but only when the decomposed contents become absorbed do they affect the health. An auto-intoxication follows, and if not found dead, are discovered in a comatose condition. It may be said here that coma is the commonest termination to all illness in birds, and it may be assumed to be painless.

A chain of egg tumours, piling up one on another, will be endured for months. and the stern go down with the weight, and still the hen will be feeding (at a loss to the owner who does not trap-nest), but there comes a time when peritonitis is caused by these tumours, and the death is sudden, although the cause has long been present. Foreign bodies, such as needles and nails, will be tolerated for a long while unless by the bird's movements they reach the investing membranes of the heart, and then pericaditis causes the fowl to be found dead. Quite young chick have come to me recently with 1½ inch wire nails they have swallowed. Did they feel the want of grit, or did they mistake nails for worms?

Sudden deaths among mature males are more often caused by heart troubles than is the case with hens, but gout is common to both.

In the case of the gouty, the investing membranes of the heart and of other organs, more or less, are covered with a substance that looks like flour dusted on, but the heart membrane becomes dry and thick like parchment. During life there is no sign, but post-mortem examination shows that the organ must have been brought to a standstill by the lesions described.

The choleric temperament of the male bird no doubt has much to do with the frequency of dilated heart and failure quite suddenly, and the verdict of found dead.

THE NORTH LANCASHIRE AND WESTMORLAND POULTRY FEDERATION.

EGG LAYING TEST, 1923-24.

REPORT OF THE 5th MONTH, Feb. 4th. to March 3rd, 1924.

Production during the month under review has been very satisfactory, when the very wet weather we have had is taken into account.

Many birds on arrival, that were in lay, moulted, and so affect their winter records to a considerable extent. It is a very great test of stamina and strain when birds are sent from the south to the rigorous northern climate of the Lake District and records made are of equal value as higher records made in the south, as the climate there is an aid to production, while in this test it is a great handicap. The health of the birds, taken generally, is very fair.

Flock averages: Section 1: 11.2 eggs per bird; Section 2.: 14.1 eggs per bird; and Section 3: 12.14 eggs per bird.

SECTION 1.—CHAMPIONSHIP (Ten Pullets).

Pos.	Name and Address of Owner and Breed.	Eggs.	Pts.
1.	W. Crabtree, Twiston (W.W.)	826	795
2.	A. Snowden, Cross Hills (W.W.)	653	612
3.	C. W. Stearne, Cambridge (R.I.R.)	590	600
4.	W. Crabtree, Twiston (W.L.)	543	548
5.	L. Williams, Liss (W.W.)	542	527
6.	Withington, Milton (R.I.R.)	562	535

SECTION 2.—Five Pullets.

Pos.	Name and Address of Owner and Breed.	Eggs.	Pts.
1.	B. Prior, Allen, Ulverston (R.I.R.)	375	386
2.	J. Sutton, Hoole (W.L.)	364	373
3.	J. R. Cheeseman, Kendal (W.W.)	375	363
4.	R. A. Hargreave, Oldham (W.L.)	350	355
5.	J. M. Edmondson, Oxenholme (W.W.)	355	355
6.	W. Watson, Ayrshire (W.L.)	348	351

SECTION 3.—Single Bird.

Pos.	Name and Address of Owner and Breed.	Eggs.	Pts.
1.	N. Pickup, Church (W.W.)	94	94
2.	R. N. Cook, Tarleton (Buff Rock)	85	82
3.	Australorps Farms, Ltd. (Aus.)	72	68
4.	J. Bowker, Carnforth (W.L.)	64	64
5.	W. E. Saul. Guildford (W.W.)	73	71
6.	W. S. Lane, King's Lynn (R.I.R.)	66	65

GLAMORGAN AGRICULTURAL COMMITTEE.

REPORT FOR THE 7th MONTH.

HEAVY BREEDS.

Pos.	Name and Address of Owner and Breed.	Total Eggs.
1.	J. Joshua, Tondu (R.I.R.)	343
2.	J. Joshua, Tondu (W.W.)	372
3.	J. H. Williams, Pontardulais (W.W.)	349
4.	Eaton and Poor, Pontardawo (W.W.)	364
5	Howell and Phillips, Barry (R.I.R.)	309
6.	T. Rees, Ystrad Mynach (W.W.)	353

LIGHT BREEDS.

Pos.	Name and Address of Owner and Breed.	Total Eggs.
1.	Howell and Phillips, Barry (W.L.)	379
2.	J. R. Thomas, Barry (W.L.)	378
3.	C. Spiller, St. Fagans (W.L.)	381
4.	C. Spiller, St. Fagans (W.L.)	355
5.	R. I. Evans, Abertridwr (W.L.)	361
6.	R. F. Davies, Ewenny (W.L.)	355

5th May, 1924. C. F. DUNKLEY, Manager.

FIRST ANNUAL CLITHEROE LAYING TEST.

FINAL RESULTS.

The above competition, which commenced on October 20th, terminated on Saturday last. During the whole period of the test, the weather has been against high production, and, held in such an exposed position, it has proved a severe test on the stamina of the birds. With the exception of the early part of the competition, when colds were very prevalent amongst the birds, greatly interfering with the output of eggs, the health of the birds has been fairly good. It may be explained that all eggs weighing two ounces or over are termed first grade and count full points, according to their market value. Eggs under two ounces have 20 per cent. deducted, the total number of points corresponding with the total value of the eggs produced. The competition has created great interest, and valuable experience has been gained by the officials in organisation, etc. There is no reason, therefore, why the Clitheroe Laying Test should not compete successfully with the best competitions in the country.

LIGHT BREED SECTION.

	Total.	Pts.
GOLD MEDAL.		
1.—Miss Greenwood, Worston (W.L.) ...	181	416.9
SILVER MEDAL.		
2.—H. Harrison, Silsden (B.L.)	180	407.7
BRONZE MEDAL.		
3.—Crook and Dugdale, Waddington (W.L.)	165	365.9
CERTIFICATE.		
4.—J. Boothman, Clitheroe (W.L.)	153	346.7
CERTIFICATE.		
5.—T. Bickerstaffe, Clitheroe (W.L.)	154	319.8
CERTIFICATE.		
6.—H. Petty, Harrogate (W.L.)	139	317.6

HEAVY BREED SECTION.

	Total.	Pts.
GOLD MEDAL.		
1.—T. Ramsbottom, Samlesbury (W.W.) ...	196	460.2
SILVER MEDAL.		
2.—T. Holgate and Son, Blackburn (W.W.)	178	398.2
BRONZE MEDAL.		
3.—R. O. Butterworth, Accrington (R.) ...	173	396.6
CERTIFICATE.		
4.—T. Sweetman and Sons, Clitheroe (R.) ...	182	395.4
CERTIFICATE.		
5.—G. Broom, Clitheroe (R.)	169	371.7
CERTIFICATE.		
6.—H. Petty, Harrogate (W.W.)	166	369

THE DERBYSHIRE LAYING TEST.

The Derbyshire Four Winter Months' Laying Test, 1923-24, was organised by the Derby Branch of the N.U.P.S., and conducted on the Utility Poultry Farm of Mr. J. Thornhill, Great Longstone.

FINAL AWARDS OF FIRST-GRADE EGGS.

First, over all sections: T. S. Collyer, King's Newton.—Gold Medal. Breed, R.I.R. Total eggs, 75.

Supplementary Gold Medal: J. K. Peach, Alvaston. Breed, R.I.R. Total eggs, 80.*

SECTION 1. (Small Poultry-Keepers).

Silver Medal and First Class Certificate for Breed Characteristics. F. Goodall, Alvaston. Breed, W.W. Total eggs, 47.

Bronze Medal.—S. Lees, Belper. Breed, Ancona. Total eggs, 35.

SECTION 2. Breeder-Members (Light).

Silver Medal. Alvaston P. Farm, Alvaston. Breed, Ancona. Total eggs, 72.

Silver Medal. Brown and Dakin, Burton-on-Trent. Breed, W.L. Total eggs, 42.

SECTION 2. (Heavy).

Silver Medal.—T. S. Collyer, King's Newton. Breed, R.I.R. Total eggs, 75.

Bronze Medal.—M. Moreton, Burton-on-Trent. Breed, R.I.R. Total eggs, 65.

OPEN SECTION III. (Light).

Silver Medal and First Class Certificate for Breed Characteristics. —J. Godfrey, Bolsover. Breed, Black L. Total eggs, 66.

Bronze Medal. Brown and Dakin, Burton-on-Trent. Breed, W.L. Total eggs, 67.

OPEN SECTION. (Heavy).

Silver Medal.—J. K. Peach, Alvaston. Breed, R.I.R. Total eggs, 80.

Bronze Medal.—J. K. Peach, Alvaston. Breed, R.I.R. Total eggs, 83.

First Class Certificate awarded to the Misses Ransford, Pensford, Bristol, for Breed Characteristics. Breed, W.L.

Certificate of Merit awarded to G. Smedley, Wirksworth, for bird laying highest number of eggs in test. Breed, R.I.R. Total eggs, 100.

The Committee wish to thank the many competitors for their complimentary letters as to the way the test has been run, and to the good condition of the birds on their return from the competition. The Test Manager, Mr. J. Thornhill, has had to contend with one of the longest and severest winters on record, and the clean bill of health, and the high egg output are due entirely to his care. Arrangements are being made by the above Society for a further test at the same place.

F. GOODALL, Test Secretary.

GLAMORGAN AGRICULTURAL COMMITTEE.

COUNTY EGG LAYING TRIALS AT LOWER HOUSE FARM, LLANTWIT MAJOR.

REPORT FOR 7th MONTH.

			Dry Mash				Wet Mash			
	per cwt.		lbs.	£	s.	d.	lbs.	£	s.	d.
Wheat	11	1½	144	0	14	3½	144	0	14	3½
Oats	12	0	149½	0	16	0	149½	0	16	0
Maize	11	11	134½	0	14	4	134½	0	14	4
Sharps	9	8	220	0	19	0	244	1	1	0
Bran	9	0	110	0	8	10	122	0	9	9
Maize Meal ...	11	4½	55	0	5	7	61	0	6	3
S.G. Oats ...	15	6	55	0	7	7½	61	0	8	4½
Fish Meal ...	21	3	44	0	8	4	49	0	9	3½
				£4	14	0		£4	19	3½

Cost of food per bird per week (Dry Mash): 2.39d.
Cost of food per bird per week (Wet Mash): 2.55d.
Dry Mash consumed per bird per day: 2.34ozs.
Wet Mash consumed per bird per day: 2.62ozs.
Dry Mash birds laid 1,319 1st grade and 848 2nd grade eggs.
Wet Mash birds laid 1,243 1st grade and 752 2nd grade eggs.
Cost of food per egg (Dry Mash): .53d.
Cost of food per egg (Wet Mash): .6d.

5th May, 1924. C. F. DUNKLEY, Manager.

Some Fruit Growing Notes to Help Poultry Keepers.

By F W. WHEELER, F.R.H.S.

30th Article.

WHAT WILL THE FUTURE BRING? The poultry-keeper is continually having thrust before him the fact of the enormous amount of eggs that are imported into this country, and consequently his attention drawn to the large market that there should be for his produce; especially if he will only supply a fresh and reliable article and of good quality. I expect the small poultry-keeper also notices that he can also do a good business with private customers, and often gets the better retail prices, because his eggs can be relied upon.

Now just in the same way, when we read the figures of imported apples, we cannot help being struck by the greatness of the demand for this one health-giving fruit alone.

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* The test ended on 28th February as per schedule. Had the test extended the whole four calendar months this bird would have been declared the winner.

A long list of figures would be wearying, and might defeat the object to impress, so I will content myself with three abbreviated extracts :—

(1) Total shipments of imported American apples to British ports for year ending March 28th was 3,001,592 barrels and 4,886,255 boxes.

(2) Imports of apples (raw) for three months ending March 31st, 1924, was 1,899,237 cwts., or half as many again as for the same period in 1922.

(3) Extract from Board of Trade figures : i.e., apples imported in 1922 £6,544,109, and in 1923 £7,398,329.

Without any doubt, all the arguments used to encourage persons to keep poultry—that is, home produce as against foreign—would hold equally well when advocating the growing of fruit to meet the ever-increasing demands.

Speaking generally, I think it is the small poultry-keepers that are chiefly drawn to the idea of combination work of fruit and poultry is a pleasant and profitable concern, and who will be most interested in these figures and the contention.

Undoubtedly they can equally well work up a nice private connection to dispose of their fruit as mentioned respecting eggs. It is surprising how many people with large gardens can (and do) dispose of surplus choice apples and pears, etc., and find supply rarely exceeds demand for any first-class fruit.

I am sure the future will see more of the poultry and fruit combination, and competition will compel us to make the most out of our land, whether we are mainly poultry-keepers or fruit growers, and whether on a large or small scale.

We never know what the future holds for us when science is continually changing the aspects of things, throwing new light on to possibilities and aid us to **overcome** the difficulties that hinder our work.

Perhaps I can make myself clearer on this by mentioning results of some experiments with apple and plum trees. Dealing with the first, some Lane's Prince Albert were grafted on to different root stocks—namely, French Paradise, Doucin, Broadleaf, Metz and Layered Free, and it was noticed that it considerably influenced the date of the opening of blossoms, which varied as much as eleven days between those on the first-named and the last.

With the Victoria Plums the same remarkable difference was observed between trees budded upon Pershore and St. Julien and those upon Brussels and Myrobolan, for the latter had hardly commenced to open when those on the former were in full bloom.

Readers will at once grasp what a lot this experiment may mean to the large or small grower of fruit, especially when more experiments have been carried out on other of our popular market varieties, for nearly every year we read of the fruit blossoms being destroyed or damaged by frosts ; if not all over the country, in certain districts.

Now if we can get some trees of each of the different varieties we most desire to grow, grafted on different stocks that will spread the blossoming period over nearly two extra weeks, then there is every chance of not having all our crops hurt by the weather, for when the early blossoms get nipped the latest opening will escape, or vice versa, thus a more regular supply of fruit each season instead of lean and fat years would be a big gain in many ways.

It is not always frost that does the mischief, as quite as often spells of cold wet weather completely upsets the polinization of the blossoms, and in the same way by having early and late blooms some must escape when parts of the orchards are crippled.

There is also a gain to be had from being able to plant together certain varieties of trees that require cross fertilization, for this again is made easier when the blossoming periods are extended over longer time.

Naturally we are in the early stages of these experiments, but as I started with a remark so I will finish. "What will the future bring?" with so many possibilities of gains yet to be discovered.

POST-MORTEMS—Continued.

Miss A. M. B. A fully-shelled egg had passed through a rift in the duct, without killing by shock, and had then been broken among the bowels and set up peritonitis.

C. E. There was no specific infectious disease, but the liver was very deep in colour, and the kidneys also abnormal. It appears to me as if they are having too rich a food and not enough exercise. Give twenty grains of sulphate or magnesia in the first pint of drinking water in the morning, or dissolved in water and mixed with food, so that they get the saline in about that proportion.

A. R. This was a typical case of fowl typhoid or cholera, and one wonders if among the cases of which "you knew the cause," how many had it.

Corkonian. Your mangling of the corpse did not prevent one seeing it was a case of pneumonia, the lungs having the appearance of liver (hepatisation), which you should have recognised without difficulty. Another time please abstain from mutilation.

Springbok. Both chicken were under-nourished, and the subjects of rickets. Lime-water in the food, and an ounce of compound infusion of gentian in a gallon of drinking water should help them to digest a more generous ration.

T. V. B. There was no specific infectious disease. The catarrh only affected the membranes of the face, the windpipe and bronchi being quite normal. There was evidence of colic in a twisted bowel, and this would be brought on by acute indigestion, of which there were other signs.

H. C. (Hants). No, not B.W.D., but pneumomycosis or infectious pneumonia that ailed the chicks.

Buttercup. All the bodily organs were healthy but loaded with fat. There was a clot of blood in the brain.

E. and B. Free egg-material among the bowels. Peritonitis. Many fully-developed yolks crowding to gain admission into the duct.

R. D. No, it was not B.W.D. in this chick which had passed the critical period. The yolk sac was dropsical, and the pressure forward had caused passive congestion of the lungs. Any digestive or temperature trouble which elevates the internal temperature (fever) will arrest the absorption of yolk, and then it either becomes fluid and distends the sac, or condenses into a hard substance, and acts like a foreign body, causing peritonitis. I have opened several to-day with these different conditions.

D. V. C. I could find no evidence of specific disease in either of these chicks. They were ill-nourished and had not absorbed the yolk, and there was no food in the alimentary canal. I would commend to your consideration Mr. Newman's article on Chick Mortality, which I have had reprinted, and am sending you a copy by post.

F. L. This chick had pneumonia.

W. C., Cheddar. This pullet was the subject of rickets in its worst form. The epiphyses of the long bones had not ossified, and the ends had undergone decalcification. She was constitutionally feeble, I should say, from the first. It is not, as you will know, regarded as infectious, but a number may be similarly affected under the same conditions or environment.

APPLICANTS FOR MEMBERSHIP.

Bethell, C. V., "Oakhurst P.F.", Balcombe Road, Hayward's Heath.
Harris, W., Movilla, Newtownlands, Co. Down, Ireland.
Pratt, J. H., Coney Green P.F. Grove, Retford.
Rayworth, H., Penwood Lodge, Hook Heath, Woking, Surrey.
Mortimer, G. B., Green Thorn P.F., Yealand Reymayne, Nr. Carnforth, Lancs.
Blake, L. F. M., "Bozanti," Westbury, Wilts.
English, Miss M., 2, Stanley Villas, Bath.
Harvey and Carter, Messrs., Winford Manor, Nr. Bristol, Somerset.
Wroe, A. E., The Poultry Farm, Gayton Cliff, Nr. Scarboro'.
Gee, G. E., Callow Hill Farm, Alvechurch, Birmingham.
Field, R. E., 12, Norton Road, Letchworth, Herts.
Claridge, C. B., The Crest, Castledon Road, Wickford.
Corbould, Capt. P. S., Thruxton Down House, Thruxton, Hants.
Betts, John A., The Manor P.F., Hampstead Norris, Nr. Newbury.
Ewing, Miss, "Brooksyde P.F.," Bishopton, Renfrewshire.
Falconer, G., Manor Farm, Bradley, Alresford, Hants.
Ryder, J. H., Chilton Foliat, Hungerford, Berks.
Clark, H. M., "Olivet," Battle Road, Hollington, St. Leonards, Sussex.
Reid, D., Kirkwood, Stewarton.
Heape, Maj. E. Ashton, Crossfield, The Zwaartkop Valley, Pietermaritzburg, Natal, S.A.
Cowan, Miss W. M. H., Lagreach, Pitlochry, Perthshire.
Sharpe, Miss Joan, High Plat, Nutley, Uckfield, Sussex.
Banson, F. B., 23, Tivoli Road, Crouch End, London, N.8.
Collyer, T. S., Ivy Cottage, Kings Newton, Melbourne, Derbyshire.
Bergersen, E., Beehive, Spratts Down, Ower, Nr. Fawley, Hants.
Scudder, A. S., Haresland Cottage, Daws Heath, Thundersley, Essex.
Dixon, R. A., Seasalter Cross Farm, Whitstable, Kent.
Marsh, A. S., Ellington, Albany Road, Fleet, Hants.
Swire, Miss M., Longden Manor, Shrewsbury.
Gibson, Mrs. H. M., Barn House, Brompton Road, Northallerton.
Jackson, C. A., Wrencote P.F., Hookwood, Nd. Horley, Surrey.
Davey, A. J., Maidenhayes, Downderry, Cornwall.
Clarke, F. H., Columbia Nursery and Fruit Farm, Ensbury Park, Bournemouth.
Wood, F. E., 20, Clarendon Place, Hyde, Cheshire.
Coaterman, Miss H. M., Homedown Farm, Tewkesbury.
MacGowan, J., "Edgington," Staplecross, E. Sussex.
Muir, James, Wardhill P.F., Stromness, Orkney, N.B.
Payne, A., Ford Farm, Rockbeare, Devon.
Collins Bros., Hayes P.F., Paignton, Devon.

NOTICE.

Will Readers and Members kindly remember that Mr. Newman is in Spain, attending the World's Poultry Congress.

Eggs, addled, infertile and otherwise, dead chicks and food samples continue to arrive by every post. The latter he will attend to on his return, but the others!!!

MARKET REPORT.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 9th MAY, 1924.

GRAIN AND FEEDING STUFFS.—A further advance in prices of home-grown wheat is recorded this week, due to the scarcity of supplies. Prices now average 11s. 1d. per cwt., a rise of 4d. during the past two weeks. There is hardly any British barley on offer, while oats are in limited supply and meet a rather more active enquiry, although with no appreciable increase in values.

Imported grain experiences a more active trade and prices are generally higher. No. 1 Manitoba wheat shows a further advance of 6d. per quarter to 49s. 9d., and Argentine oats average 22s. 4d. per quarter, against 21s. 8d. last week. Maize shows no material change in price.

Millers' offals are in active request, and middlings show a further advance, averaging £8 17s. per ton or about 5s. more than last week. Linseed cakes are in quiet demand, but cotton cakes meet a fair trade and are firm in price.

MILLERS' OFFALS.—Bran (British): Bristol, £8 10s.; Hull, £7 12s.; Liverpool, £7 15s.; London, £7 17s. Broad Bran: Hull, £9 2s.; London, £8 12s. Middlings: Fine (Imported): London, £9 10s.; Coarse (British): Bristol, £9 5s.; Hull, £9; Liverpool, £8 5s.; London, £8 17s. Pollards (Imported): Bristol, £7 15s.; Hull, £7; Liverpool, £6 15s. Rice Bran: Bristol, £7 10s.; Liverpool, £7 10s. MEAL.—Barley Meal: Bristol, £10 10s.; Hull, £10; London, £10 7s. Maize Meal: Bristol, £12; Hull, £10 1s.; Liverpool, £10 10s.; London, £11 10s. Maize Germ Meal: Bristol, £11; Hull, £10; London, £9 5s. Maize Gluten Feed: Bristol, £11 5s.; London, £9 7s.

EGGS AND DEAD POULTRY.

English eggs are in good supply, but the lower grades of imported are less plentiful and are rather dearer. Chickens are scarce and in steady request at very firm prices. Larger consignments of English eggs have been on offer, but cheaper grades of imported were not so plentiful; trade continued to be steady, and quotations were generally higher. Supplies of English chickens were hardly sufficient for the demand and with a good enquiry prices advanced; fair offerings of imported poultry met a dull market.

Week-end prices.—Eggs (per 120): British, 14s. 6d., 13s. 6d.; Irish, 14s., 13s. 6d.; Danish, 15s. 9d., 14s. 6d.; Dutch, 15s. 9d., 14s. 6d.; Belgian, 14s., 13s. 6d.; Italian, 14s., 13s. 6d.; Egyptian, 9s. 3d., 8s. 6d.; Moroccan, 9s. 6d., 9s. 0d.; Styrian, 13s. 6d., 13s. 3d.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 9d., 2s. 6d.; Irish, 2s. 4d., 1s. 11d.; Others, 2s. 4d., 1s. 11d.

EGGS.

Per Doz.—Ashford: First, 1s. 3d.; Second, 1s. 1d. Birmingham: First, 1s. 4¾d.; Second, 1s. 3½d. Carlisle: First, 1s. 5d. Chelmsford: First, 1s. 4¼d.; Second, 1s. 2½d. Derby: First, 1s. 3½d. Dorchester: First, 1s. 2½d. Exeter: First, 1s. 4d. Guildford: First, 1s. 5d.; Second, 1s. 1d. Hereford: First, 1s. 1d. Hull: First, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 3d. King's Lynn: First, 1s. 3d.; Second, 1s. 1d. Lincoln: First, 1s. 4d. Llandilo: First, 1s. 2d.; Second, 1s. 1d. Montgomery: First, 1s. 3d. Newport (Mon.): First, 1s. 4d.; Second, 1s. 3d. Norwich: First, 1s. 3d. Oswestry: First, 1s. 2d.; Second, 1s. 1d. Penzance: First, 1s. 3d. Second, 1s. 2d. Salisbury: First, 1s. 3d.; Second, 1s. 2d. Shrewsbury: First, 1s. 3d.; Second, 1s. 2d. Skipton: First, 1s. 4d. Truro: First, 1s. 0d. York: First, 1s. 4d.; Second, 1s. 3d.

FOWLS.

Per lb.—Bimingham: First, 1s. 9d.: Second, 10d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 10d. Hereford: First, 1s. 10d. Ipswich: First, 1s. 10d.: Second, 1s. 8d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 2s. 4d.; Second, 2s. 2d. Newport (Mon.): First, 1s. 8d.; Second, 1s. 6d. Shrewsbury: First, 1s. 6d.; Second, 1s. 3d. Truro: First, 1s. 4d. York: First, *6s. 0d.; Second, *4s. 9d.

DUCKS.

Per lb.—Exeter: First, 1s. 9d. Guildford: First, 1s. 5d.; Second, 1s. 3d. Llandilo: First, 2s. 6d.

* Per Head.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, May 21st, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

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All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

HENS.

> "Of all the aggravatin' things, in a aggravatin' world, 'ens, 'usbings, and 'ats is the most."
>
> (Mrs. Green.)

Mrs. Green's experience of 'usbings may have been confined to a single individual, and so a certain amount of prejudice may enter into her view of the question, which will raise doubts as to the soundness of her judgment, but we, who are acquainted with very many 'usbings, can speak impartially, and, on the whole, we are inclined to endorse her opinion; more we dare not say. As to the 'ats, so far as our experience goes, they are most "aggravatin'" when on the head of another woman, and as it has been asserted that a woman does not dress to please anybody, not even herself, but merely to annoy others of her sex, the probabilities of Mrs. Green being right are very great. However, it is possible that we shall be on safer ground when dealing with 'ens, so we will confine ourselves strictly to them for the remainder of this article.

That they can be "aggravatin'" is undeniable, they disappoint us in so many ways, and have a number of vicious habits which tend to upset our most profound calculations.

We have hens which, like the ones possessed by Mary, "only lay when eggs are cheap and stop when they are dear," others lay a large number of eggs which are unsaleable, or are so small that they have to be sold at fourteen to the dozen. Then there are the hens which we select for the laying tests, which finish with the "also laids," while their very own sisters, which we keep at home as not being good enough to send, actually lay dozens more eggs than the winning pen. We know this to be true because at different times several competitors have told us so, and we even knew one competitor who won a test, whose birds which stayed at home, easily beat his winning pen.

Then there was the hen belonging to a member of the S.P.B.A., a White Leghorn. An order had been received from a special customer, who paid a high price for a sitting from the extra special pen, the condition being that they should be sent off by the 4.30 train on a certain date, and as the customer had been disappointed on a previous occasion, and was much exasperated, it was most essential there should be no mistake this time. At 2.30 our member was one egg short, and very anxious. At 3 p.m. No. 216 was on the nest; if she laid by 3.30 there would be just time to pack the eggs and catch the train. At the appointed time she was still sitting contentedly on the nest; at 3.40 hope revived, a loud cackling was heard, our member rushed to the nest, only to find she had laid a shell-less egg! Perhaps we may be able to say at a later date how the difficulty was overcome; at present we are pledged to silence.

Then, of course, there are egg-eating hens, and feather-plucking and feather-eating hens, and hens which we grade up to 285 eggs, which fail to reach that mark by 200, and others which we grade at 85, which lay 285, but perhaps we should not blame the hens here. At any rate, these horrible facts should not appear in cold print, or somebody's reputation will be ruined, so we will pass on.

There are others who start laying with a long sequence, and we begin to have visions of a 300-egg record. At last the sequence comes to an end; the hen stops laying, like Grandfather's clock—"never to go again." There are others which go steadily on piling up their records, and don't moult until just when we want their eggs for incubation; and again, others whose progeny will have a tendency to soft bone—hens which were Dairy Show winners, bought at a very high price, which never bred a winner. Then there are quite common hens, picked up at Leadenhall Market for 5s., which not only win in the classic shows themselves, but do breed Dairy winners. Again we can speak with some authority, because we have been told so by a man who said he had done it. Then there are cross-bred hens which lay dozens more eggs than pures, and cross-bred hens which lay dozens less, and there are others which fly religiously over 6 feet wire netting and lay an egg every day in our neighbour's garden, with whom, at that particular time, we don't happen to be on speaking terms. There are the different classes of broody hens, but, as all our readers have experienced them, it is hardly necessary to say anything about them.

It is quite impossible to deal in detail with all the hens mentioned above, there are so many reasons why Mary's little hen should behave so badly, including Mary, that we must pass her by; and as to those hens in the laying test which so badly disappoint their owners, that too may be due to many reasons, some of which may include the owner or his methods of selection. So we confine ourselves to the others. Egg-eating is a vicious habit. It has been suggested that it is due to some dietetic deficiencies, but that is not very probable; the lack of shell-forming material will cause thin-shelled eggs, these are, of course, easily broken. Then there are the eggs broken when laid from the perch. A hen starts eating one of these and the habit is contracted, which will soon be imitated by every bird in the flock if it is not speedily checked. As a rule, filling the eggs with mustard, ammonia, and other nauseous compounds has very little effect. The best and most effective method is to darken the nests by tacking a piece of dark cloth across the front, slitting this up the middle, so that the bird can easily get in and out of the nest, laying a few china eggs down in the immediate neighbourhood of the nests, and paring down the hens' beaks.

Feather-picking is another vicious habit, to which birds in close confinement are subject. It has been suggested that this, too, is due to deficiencies in the diet, but it is more probably merely a habit contracted through idleness. The best cure, where it is possible, is to allow the birds free range; failing that, to smear the feathers with vaseline with some bitter aloes mixed with it. It has been suggested that the addition of salt to the diet will effect a cure, but we have never found this effective. The best cure is to keep the birds active and apply the mixture given above. Feather-eating, as distinct from feather-plucking may be due to a depraved appetite, either a deficiency of something in the diet, or some particular ingredient. Cotton seed meal contains a poisonous substance known as "gossypool," and this will cause a depraved appetite, the birds eating sticks or any sort of rubbish. It is possible that an excess of fibre in the mash will cause this trouble, also a deficiency of green food, or of animal food. The addition of salt and animal food, with plenty of fresh green food, will sometimes stop this trouble.

Hens which start with a long sequence and then break down are generally lacking in constitutional vigour, or there may be some ovarian disease to account for the wonderful activity of the ovary. Every year there are wonderful layers who disappoint by dropping into the moult at the beginning of the breeding season. Sometimes the temptation to allow them to carry on, in order to see what sort of records they will put up, is too strong to resist, but if they are intended for the breeding pen in the following season, they should be encouraged to moult in September, or at the latest October, so that they can have a rest before they are mated. This can be easily done by removing them to another house, reducing slightly the quantity of food, and not feeding maize. The birds should be confined to the house until the feathers begin to fall fairly freely, then placed on full feed and given their liberty. Poor hatchability is highly inheritable, and when the trap-nest and the pedigree tray reveal the fact that we have such a hen, the best thing is to get rid of her, for she will transmit this trait to her progeny, and from the point of view of economy it is desirable not to perpetuate such a factor.

It is difficult to say whether by special feeding of breeding stock we can counteract the tendency of some hens to breed progeny with a tendency to soft bone. It seems possible and needs investigation.

Modern Poultry Feeding.

By TOM NEWMAN.

WELLINGHAM CHICKEN FEEDING EXPERIMENTS, 1924.

FIRST SERIES.

The chicks continue to make satisfactory progress. The following are the weights at the completion of the ninth week:—

(30 Light Sussex, hatched February 29th) in each experiment.

EXPERIMENT 1. (Red Ring).

Ninth Week (May 2nd): Average weight, 1lb. 9.6ozs. Average Increase, 4.48ozs.

EXPERIMENT 2. (White Ring).

Ninth Week (May 2nd): Average Weight, 1lb. 8.1ozs. Average Increase, 4.34ozs.

EXPERIMENT 3. (Blue Ring).

Ninth Week (May 2nd): Average Weight, 1lb. 8.9ozs. Average Increase, 4.34ozs.

RETARDING THE MOULT.

I have received the following letter from Mr. R. A. Currie:—

> "Dear Mr. Newman,—I do not often trouble you with a letter, but as I think that much can be done by nutrition (as I think you do) would like to hear your views and those of your readers as to the possibility of so feeding birds as to prolong the laying period as far into the winter season as possible before moulting.
>
> Owing to the very low prices received for eggs in the summer period, I am certain that many people neglect to feed up to compensate for the heavy production at this time, saying to themselves that eggs are not worth producing at the price, forgetting that prices improve later; that if a pullet can be made to keep on laying without moulting early, as many of them do, going out of profit till after Christmas, there is often money to be made in the months of September, October, and November. Good pullets will moult and lay at the same time (some of them), very likely because the owner takes special notice of them, and gives them a little extra, or in some way attends to their wants more completely, and keeps the fat supply up. The same attention would have to be given after moulting, when they show a tendency to put on fat instead of laying.
>
> To put the matter shortly, what we seem to want is a formula to keep the feathers in their places until the last possible moment. Another one to follow it, containing something to replace the feather in the shortest possible space of time, and another later to get the (now) hen into laying condition as soon as we can, and continue the good work right up to the cold weather again.
>
> Your recent article on the cost of replacements, gave rise to these thoughts, and perhaps you or others may think it worth while to provide some useful data.
>
> I know very well that every really good poultryman does all that I suggest, as far as he can, but I fear that many have not given the matter the consideration that it deserves.
>
> If the number of eggs produced in a year was advanced by only 10 eggs in the months of September or October the gain to a man with a thousand layers would be so considerable as to make it well worth his while to go to some extra trouble and even expense.
>
> I think the Wellingham experiments are letting quite a lot of light in on Nutrition, and possibly something might be done with the present pens if the Council thought it worth while."

Mr. Currie's letter is most interesting, and raises an important point, but perhaps it would be advisable to say at once, that it is impossible by nutrition to *control* the moult, although we may, to a slight extent, *influence* it. What he asks is, I fear, impossible, as far as our present knowledge goes. I have on many occasions pointed out that a large number of pullets fall into a premature moult each year because of under-feeding. To repeat what has been said many times before, when a hen is laying very heavily, she draws on her body fat to form yolks. If the ration is very deficient she will, when this becomes exhausted, either cease laying until she accumulates more, or fall into a moult; thus we get the neck moult in early-hatched pullets, which is often due to their being in slightly under-condition when starting to lay. Later on the result of this may be that they will fall into a complete moult.

Probably the most critical time is at the end of May; it is just at the end of what may be called "the natural laying season," and a pullet which has been producing five or six eggs a week, will have, of necessity, drawn rather heavily on her bodily reserves. This is generally shown by deterioration in the size of eggs, before there is any actual drop in numbers. This is the time when we should begin to "feed up," and in spite of all that is said to the contrary, maize is the best food at such a time. It is all nonsense to talk of its being too heating. That may be perfectly true in the case of the poor producer; with the bred-to-lay hen it is incorrect. I am speaking from long practical experience of feeding maize in the summer months. It is twelve years ago since I first wrote on this subject in "Eggs," and it was the first article I had ever written. One can only say, then, that no special feeding is needed to prevent birds falling into an early moult. It is merely a question of observation, and the supplying of the quantity and quality of food, which will be not only sufficient for bodily maintenance, but leave a surplus for egg production, and it must not be deficient in fats. We must remember that the poor layer is the early moulter, and nothing we can do will prevent this bird from moulting early. It is really a question as to the different uses to which two different birds will put their food. One will turn it into eggs, and the other will use by far the greater proportion of it for bodily maintenance. I think this gives us some idea of what we mean when we speak of fecundity being inherited. It is really a question of physiology. What a hen inherits is the number of potential eggs, for good and bad layers alike have the same number of oocytes, but the one is constitutionally unable to turn these into eggs, while the other, for purely physical reasons, turns her food to a different purpose, and becomes the highly fecund hen.

The good layer always digests her food more rapidly than the bad; digests it more rapidly when she is in full production, and it is probable that she digests a higher percentage of her food. There is an old saying, "What makes feathers, makes eggs," and it is, to a great extent, true; for we note that a hen reduces the production of eggs just before she goes into a moult, and with few exceptions ceases to lay directly the feathers begin to fall, the comb, wattles and lobes (the secondary sexual organs) shrink, indicating that the ovary is inactive, and the food is being used for the growth of new feathers, instead of for egg yolk. When the new feathers are fully developed, then more food is diverted to the formation of eggs, and we see the comb, wattles and lobes expand as the ovary becomes active again. Now, Mr. Currie asks for a good formula to keep the feathers in their places until the last possible moment. Let me point this out to him, that this entails nothing more than keeping the hen in good bodily condition. An under-nourished hen will moult prematurely; a well-nourished hen will not retain her feathers longer by anything we can do in the way of feeding, she drops them because of the new ones coming through, and it is the new ones which are being nourished, while the old ones are not. The really good layer, which moults late, is not growing new feathers, hence her late moult, and the continued activity of the ovary. To sum up, then, there is no method of feeding which will help a well-nourished hen to retain her feathers. The fact that she is well-nourished is favourable to the development of the new ones. When, however, we come to assisting in the development of the new feather it is a different matter. One thing we must always keep in mind, that is, that well-nourished hens will always come more quickly through the moult than one which is badly nourished.

Here is the best formula I know for moulting hens: 2lbs. of bran, 4lbs. middlings, 1½lbs. maize meal, 1½lbs. Sussex ground oats, ½lb. dried yeast, ½lb. linseed meal, and ½lb. meat and bone meal or fish meal.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

SEX RATIOS AGAIN.

The following letter is from a correspondent. Here is a problem for you. What would have been your advice under the circumstances?:—

> "Dear Mr. Newman,—Out of 153 chicks I have only 37 pullets. Shall I scrap the males, or the females—or both? Thirty-five chicks hatched by three hens have not produced a pullet.
>
> There are White Wyandottes, own stock, 50 R.I. Reds (purchased eggs), only eight pullets."

With all the mass of contradictory evidence at your command what would have been your advice, and why? There is a splendid opportunity for someone to write an able article on this subject, explaining wherefore the writer had the great preponderance of males, and why Mr. Collins always has a preponderance of pullets.

NATIONAL POULTRY PARLIAMENT, 1924.

Arrangements have been made for holding the National Poultry Parliament this year at Salisbury on July 15th to 18th. A strong local committee has been formed, consisting of representatives of the Salisbury City Council, of the Wilts Agricultural Education Committee, and other influential bodies. This is taking steps, which it is believed, will make the Parliament this year specially interesting. Some very important questions will come up for discussion, and it is desired that all Societies, etc., shall be represented. It is intended to hold a Public Meeting on the afternoon of Tuesday, July 15th, and a promise has been received from Dr. Raymond Pearl, of Baltimore, U.S.A., that he will be present, and give an address. Dr. Pearl's name is known throughout the world in connection with his research in breeding of poultry.

MARSH DAISIES.

The history of the Marsh Daisy is interesting, and one might almost say romantic. Viscount Canterbury has sent me the following article, which is a copy of one he has contributed to the "Eastern Daily Press":

THE MARSH DAISY FOWL.

Without taking up too much space in the columns of the "E.D.P." and also too much of the time of its readers, I feel it almost a duty to all poultry fanciers and others to endeavour to convince them of the bona-fide existence of such a breed of domestic fowl as the Marsh Daisy. This breed has an interesting and curious history.

Some ten years ago they were discovered in the possession of an old man who lived in a hut on a marsh in some very remote spot, and who had apparently for years strictly refused to either divulge the origin of them or even part with any birds. He was, however, one day persuaded to part with two hens to a gentleman named Moore, to whom he also entrusted the secret of their pedigree. The name Marsh Daisy is derived through the few fowls this old man possessed being named Daisy, Rose, and Jane, and from the fact that they thrived and laid so well on a wet marsh.

Their pedigree is now no longer a secret. It is Malay cock mated with an Old English Game Bantam hen. These two hens were mated to a pedigree Old English Game cock, and subsequent cross matings.

It may be of interest, if not of some amusement, to the readers of this article to tell them that two years ago and even up to the present time I advertised sittings of eggs from this breed, and I have constantly heard that many people think the advertisement is a "leg pull" and refers to something to do with agriculture and gardening. Indirectly it has something to do with agriculture, as I do not know of any breed of fowl more suited to the farmer than these birds. Of course, it obviously was in no way connected with gardening, except, possibly, that these birds, if allowed to run loose, have proved themselves untiring gardeners, especially in freshly sown seed beds.

I bought my original stock direct from the gentleman referred to, and have bred them for three years. They are very hardy, prolific layers of a large, slightly tinted egg, and do not become broody until quite late in the season; as a table bird they are unsurpassed, owing naturally to the O.E.G. blood.

If it would be of any interest to poultry fanciers to come and see these birds in the flesh, and thereby become convinced that such a breed really does exist, I shall be pleased at any time to show them my stock by application to Mr. J. Lester, Bergh Apton; and by such a course hope to dispel the idea that eggs laid by Marsh Daisies have any connection with gardens and farms. The breed is recognised by the Poultry Club, and there is a Marsh Daisy Club (Hon. Sec., G. W. Stott, Bowling Green Mill, Darwen).

THE SUSSEX CLUB YEAR BOOK.

I have received a copy of the Sussex Club Year Book, which, as usual, contains some very useful information concerning the Breed. The President, in his letter to members, makes one very cogent remark: "However good a hackle, however pure the undercolour may be, the Sussex, if it has not type, is nothing."

I note that the following resolution was approved at the General Meeting, submitted by Capt. Crawshay, seconded by Mr. A. P. F. Grant:—

> "Capt. R. Crawshay submitted the following proposition, which was seconded by Mr. A. P. F. Grant, and approved:—'That this Annual General Meeting of the Sussex Poultry Club views with apprehension and disapprobation the action of the Poultry Farmers and other Poultry Keepers in exploiting the Sussex Breed in abnormal egg production to the destruction of its proper standard of excellence, that of dual or general purpose, thereby resulting in loss of size and loss of stamina, involving, perhaps worst of all, that especially fine characteristic of the breed, the hardihood and ability to thrive and produce eggs in the depth of winter in exposed situations on cold lands, and desire the Committee to take every available opportunity to make known the evil thus done, through the medium of the Club publications and of the Poultry Press, furthermore enjoining all true-hearted Sussex Breeders, whether members of the Club or not, to use their individual efforts and influence with others, to the same end.'"

I must say that I am in entire sympathy with this resolution, and have said so on more than one occasion in these columns. My impression is that a real dis-service was done the breeder when it became a competition in laying trials. It is a naturally good layer, and a flock of Sussex which will average 140 eggs in the year is a more economic proposition than sprinters. However, that is only my opinion, and there are hundreds who do not share it. That evil has been done is evident by the fact that the resolution was approved at the General Meeting.

There are interesting articles by Messrs. Grant, Falkenstein, Clem Watson, and others.

WELCOME TO MR. EDWARD BROWN, F.L.S., AT BARCELONA.

On the arrival of Mr. Edward Brown, who is Joint President of the Second World's Poultry Congress and Exhibition, at Barcelona, on May 5th, 1924, he was welcomed by an important delegation, who expressed the appreciation of the City at his presence, and that the Congress and Exhibition was about to be opened there. The delegation consisted of Senor Mundo, Deputy Alcalde (Mayor), of Barcelona; Senor Fourniér, Municipal Councillor of Barcelona, and three of his fellow Councillors; and Senor Ribé, Chief of the City Police, as representing the Municipality of Barcelona. The General Committee of the Universal Exhibition of 1926, and in whose buildings the Exhibition is being held, was represented by Senor Domingo Sert, President of the General Committee; Senor Marti Ventosa, Member; and Senor Sagreco Almirall, Secretary. The local Executive Committee of the Congress and Exhibition was represented by Senor Professor Salvador Castello, who is Joint President of the Congress, and Senor Eurique de Villaamil, Secretary.

POULTRY CENSUS, 1924.

The National Poultry Council calls the special attention of those engaged in poultry breeding and production to the importance of filling up of the Agricultural Returns, which will be collected on June 4th next. Unless this is done by all who come within the scope, it will be impossible for the Ministry of Agriculture and Fisheries to secure the necessary information as to Poultry husbandry on holdings of one acre and upwards. It is suggested that Poultry Societies should urge upon their members and others to co-operate in making records as complete as possible, and that poultry-keepers shall recognise this as a duty.

Everyone whose holding exceeds an acre of land used for agricultural purposes (which includes horticulture and poultry keeping) is required to make a return on the date named, for which a form will be issued by post by the Ministry's Crop Reporters between May 28th and the 1st of June.

Any person who has not received a form by 3rd June, should apply to the Local Crop Reporters, or direct to the Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W.1.

In addition to general information as to size of holding, classes of cultivation, numbers of other stock kept, if any, the numbers of poultry hatched before 1924, and during the present year, should be stated in sections 53 to 60.

The Agricultural Returns not only apply to general farmers, small-holders and allotment keepers, but to those engaged in Poultry Husbandry, who are thus officially recognised as engaged in Agriculture, and whose occupations are above an acre in extent.

The returns made are absolutely confidential, and are not used for any other purpose than the collection of statistics to indicate the advance, or otherwise, in all branches of farming. Formerly the fact that these returns were collected by Inland Revenue Officials gave rise to the idea that they might be used in connection with assessment for Income Tax and Rating. As already indicated, the Inland Revenue has nothing to do with the Agricultural Returns.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Notes on Utility Ducks.

By A. HAROLD PAINE.

A few hints this week on the natural hatching of duck eggs may be helpful to many. I have on different occasions received reports of from 12 to 15 youngsters from 15 eggs that have travelled hundreds of miles, and I have often thought that equally good results might be obtained generally if more careful attention was paid to the sitting hen. This attention consists particularly in seeing that she is kept free from insect pests during her month's work. I believe it often happens that so soon as a hen is seen to be really broody the coop is got ready, the eggs are put under the hen, and the usual feeding and watering, and a few minutes liberation daily is considered all that is necessary. It is far from being so, however. The hen should be most carefully examined from beak to feet; it is unlikely that in the warm weather she will be entirely free from insect pests of some kind or other, and these should be carefully searched for. The day before she is placed in the coop she should be thoroughly and liberally powdered with some good insect or disinfectant powder. When I say thoroughly and liberally, I mean that she should be held over a large sheet of paper and about half a tin of the powder, if it is a small tin, should be thoroughly dusted and rubbed in. The surplus powder that will fall on to the paper can be replaced in the tin for use again. This should be repeated the following day, and then she may be considered ready for her month's sitting. Some breeders dip their broodies in a disinfectant wash, but we have found that thorough dusting is equally efficacious and satisfactory. For the hatching of ducklings an extra roomy coop is advisable, and the best type is one with two compartments divided in the centre by a slatted partition. The roof should have hinged shutters which button, and the front should be fitted with a sliding shutter with glass panel. The floor should be wired with very fine mesh netting so that there is no danger of rats or other vermin entering. One half of the coop should have a movable wooden floor. The eggs should be tested about the 10th and the 20th days, those that are infertile or addled being removed. The best food to give is kibbled maize, and an ample supply of fresh water should be given daily. If two hens are set at the same time the resulting progeny up to about 25 youngsters may, after hatching, be given to the one hen, leaving the other free for a further hatching. It is inadvisable to use one hen for more than two consecutive hatchings in the season, as to sit tightly some 56 days almost in succession is rather a tax on any bird. Some breeders take the hen off the nest for about ten minutes daily, but on my own plant we often leave the front of the coop open the whole day long, letting the hen come off when she likes. The coop should, of course, be securely closed up at night. If the weather is very warm I would suggest that from the third day the eggs should be liberally sprinkled or sprayed daily with water of a temperature of about 105 degrees, this being done when the hen has left the nest of her own accord, or has been taken off. Towards the end of the hatch the eggs should be thoroughly well drenched.

Attention to these little details will probably mean success even to the novice.

"LEICESTER MERCURY" COUNTY LAYING TRIALS.

The seventh month of the above trials concluded on April 27th, during which period 4,896 eggs were laid, bringing the total for the full period of 28 weeks up to 27,021. There has been a continued improvement in the size of eggs, and to date only 1.03 per cent. have been below the second grade standard. Two birds died towards the end of the seventh month, making three in all since the competition started, but apart from these deaths the health of the stock has remained excellent. Very little broodiness has been in evidence at present. The leading pens in each section are as follows:—

SECTION I. Division A.—Light Breeds (Six Birds).

Pos.	Name and Breed.	Eggs laid.
1.	Mrs. R. Crawford (W.L.)	807
2	J. and A. Moore (B.L.)	775
3	T. F. Wildman (W.L.)	782
4.	W. Crooks (W.L.)	734
5.	F. Porter (W.L.)	736
6.	W. S. Woodward (W.L.)	699

SECTION I. Division B.—Heavy Breeds (Six Birds).

Pos.	Name and Breed.	Eggs laid.
1.	H. B. Howe (W.W.)	819
2.	E. Hill (R.I.R.)	826
3.	T. F. Wildman (R.I.R.)	831
4.	Mrs. Briers (W.W.)	774
5.	A. Wright (R.I.R.)	776
6.	Mrs. M. V. Hughes (R.I.R.)	741

SECTION II.—Any Breed (Two Birds).

Pos.	Name and Breed.	Eggs laid.
1.	J. T. Kidger (W.W.)	266
2.	J. A. Mills (W.L.)	260
3.	Miss D. Walton (W.L.)	249
4.	A. Wright (R.I.R.)	257

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. **Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

F. C. W. (Hawell). The bad hatching results were, I think, wholly attributable to your method of feeding. It was not a question of dry v. wet mash, and the result would not have been better with the dry mash had the composition been the same. Equal parts biscuit meal, barley meal, middlings, maize meal and ground oats are not a suitable combination for a breeding pen of Light Sussex, especially with wheat as the grain. I would not give barley meal to a breeding pen. With such a formula as you used it was impossible for hens to lay hatchable eggs, especially as they were kept in confinement. (2) There is no cross with a White Leghorn male which would enable you to breed chicks the sex of which you could detect at hatching.

D. A. (Wakefield). I can only conclude that the chicks lacked vitality, due to their being bred from immature stock. The feeding and general management appear to be quite all right, but you should realise it is a great mistake to breed from Wyandotte pullets hatched as late as mid-April, as you say they were rather small and laid small eggs, and your mistake was in attempting to compensate for this by mating them to a second-season male. Constitutional vigour is inherited from the female, and it was lacking in your pullets. What, then, could you expect from your chicks? I am afraid that no suggestions that I can make as to feeding would help you. (2) These are still-ground oats, and not "Sussex," but they are an excellent sample and equal in value to the latter.

"Pale Yolks" (Bristol). In some cases pale yolks are due to constitutional weakness, but in others due to lack of green food, and it is often apparent when wheat is the sole grain food. On the other hand, maize tends to improve the colour. Feed plenty of green food, give a little sulphate of iron in the drinking water, and give kibbled maize. This should lead to an improvement.

B. B. (Freshford). Indiscriminate in-breeding must certainly cause degeneration. In-breeding is only justified when the stock is exceptional in every respect. If it is only mediocre no improvement can be effected by this system, and degeneration would set in rapidly. If the stock is at all weakly it would soon flutter out, if this system was attempted. It is neither advisable nor necessary with highly-fecund stock. Occasionally, the close breeding of exceptional individuals may be justified. I would not advise it systematically. (2) I cannot be positive, but believe the highest record ever obtained in a two years' laying contest was by a pen of Croad Langshans, which laid 1,487 eggs in their first year and 1,006 in their second—a total of 2,487 eggs, or an average of 415 each in the two years. This was in Australia.

Mrs. J. M. P. (Ringwood). Such a close mating as you describe is rather risky, and should only be made when you have very exceptional birds on either side. It is singular that you should have only four cockerels out of twenty chicks. Frankly, I do not like such close mating, and, as I have said before, it should only be done in the case of very exceptional stock. You have sent me no history of your birds, and under the circumstances I would advise you not to use these cockerels. Be advised and resist the temptation. Many thanks for your kind appreciation of "Eggs," which I am glad has proved so helpful to you.

E. M. B. (Worcester). I feel you do not appreciate the difficulties. You suggest that in order to improve stamina, egg production, and size of egg, you should cross your Wyandotte hens with a White Plymouth Rock cockerel and, by mating the progeny to a pure Wyandotte cockerel, you would have pure Wyandottes. It sounds so beautifully simple, but I am afraid it will not work out as you think. In the first place, they would not be pure Wyandottes, but 25 per cent. Rock; in the second, you would find that even assuming your Wyandotte hens are pure for rose-comb and rose-comb is dominant to single, the progeny would carry the single-comb factor, which would keep popping up in future generations. Then there is the question of shape. In the first cross they would probably be intermediate, but it would take a considerable time to breed out Rock characteristics in future generations. Neither would I advise you to go to an exhibition breeder. There are plenty of good utility breeders who have pure Wyandotte with type and stamina and size of egg. The actual crossing of strains does not cause the single-comb. If both strains were "pure" for rose-comb there would be no single-comb progeny.

A. B. (Ongar). The only possible explanation of such poor production seems to be the introduction of the male. As the hens had given such a satisfactory average in their pullet year you were justified in breeding from them, but your mistake was in the selection of the male bird, and I presume from what you say that you thought as he won a "red card" in the utility class at the show, that you could rely on his breeding good stock. There is just the possibility that he was not bred from utility stock at all. I am afraid there is nothing you can do but sell these birds for the pot. Certainly you must not think of keeping them for another season. As you say their dams are still laying well, I should keep them and mate them next year to a cockerel from a dam with a trap-nested record—not one bought out of a show pen. The samples you send are all of good average quality, and the prices fair, except the ground oats, which at 19s. are 2s. per cwt. too dear.

"Thin-shell" (Notts). Your feeding has been too stimulating, and that accounts for the thin-shelled eggs. When this is the case it does no good to supply extra oyster shell. For the time being it would be advisable to reduce the maize meal by one half, and as the birds have plenty of range cut the fish meal out of the mash entirely.

F. B. B. (Crouch End). If you mate a Red Sussex cockerel to Light Sussex hens you would get "gold" or buff pullets and "silver" cockerels. If you were to mate these "gold" pullets to a Red Sussex male they would not breed true. Neither would the "silver" males mated to the Light Sussex females breed true, nor would they be pure Light Sussex. You must understand that "silver" includes white birds which are only tipped with black; a "silver" cockerel bred from such a mating would not have the markings of a pure Light Sussex cockerel. The same answer applies to your second question. We are sending you full particulars of the S.P.B.A. by post. There is no fifteen shilling subscription, and I do not understand what you mean by the extra advantages gained by paying this. The minimum subscription is 5s.

W. E. W. (Smethwick). I think your feeding is altogether wrong, and one of the proprietary mashes you have been using is, at least, not good enough for breeding stock. That would possibly explain why the fertility of the eggs has been so bad. I would suggest you try the following:—4 parts sharps, 1 Sussex ground oats, 1 maize meal (if you have no green food), 1 part alfalfa, and 1 part meat and bone meal. Keep the birds active by giving the grain in deep litter. The best grain would be:—2 parts good oats, 1 wheat and 1 kibbled maize. I am afraid I cannot help you more than this.

POST-MORTEMS.

E. S. Apoplexy of the ovarium. The forming eggs were filled with black blood and poisoning resulted by absorption into the circulation.

A. I. Internal haemorrhage from the liver. It is very unusual in birds so young (about 10 weeks), but there were patches of disease in the organ which first caused jaundice, which you may have observed in the yellowness of the membranes.

R. R. R. These were all pneumonia cases. It is likely that the circumstances you mention would have predisposed them to disease.

E. J. S. Internal haemorrhage from rupture of a degenerate liver was the cause of death in this R.I.R. hen.

No. 4617. The chick had the acute form of coccidiosis, both horns of the caecum being filled with dark blood, such as you have seen passed by others. I would push the catechu treatment, giving two drams of the tincture to each gallon of drinking water. Remember that soiling of the food by droppings of the affected is the chief means of spread, and clean up and burn all sweepings twice a day.

F. W. H. These five chicken (or four of them) have given me "furiously to think." No. 1 to be opened, which was the largest, had an abscess occupying practically the whole of one lung, and may be counted out, as probably due to some accidental cause. In none of the rest was any evidence of specific or other disease. They were all badly nourished, and in the gizzards were a large number of corn cockle seeds. To these I am disposed to attribute Githagism or chronic poisoning. I have picked out some for further examination. Not very much is known about the manner in which these poisons act, but an acute and a chronic form are recognised. In ordinary years, and in only small numbers, the seeds may be taken without much harm, but the amount of poison in them is very variable, and, as Professor Harold Long says, "depending upon the season and the soil." Experiments made with flour consisting entirely of corn cockle went to prove that as much as 0.25 of a pound had to be consumed to prove lethal. I would suggest the discontinuance of the corn containing these seeds, which you cannot fail to recognise.

Mrs. R., New Ross. Your letter was dated April 30th, and, after notifying you by post, we get the cock on the 10th of May. All this delay makes difficulties for us, and might have prevented a correct diagnosis. Stoppage was the cause, the rectum being completely packed and distended to an enormous size. The bird was over ripe, as you may imagine. May I take this opportunity of reminding readers that the long-hoped-for warm weather is still possible, and that bodies should be promptly dispatched. Many letters have to be written to folks who do not conform to the regulations, and there is no fund from which one is recouped, and very little change out of half-a-crown after reckoning office expenses.

Miss M. C. Two or three chicks are preferred for post-mortem examinations, and there is but one fee charged. Definite lesions in a second or third, may be only doubtful in a single bird. This must not be understood as an invitation to send bundles up to twenty, with instructions to report on each separately, as has been done on several occasions. No. 1 chick was the subject of pneumonia. All three had acute indigestion, the glandular stomach being filled with dirty fluid, and much gas; while the gizzards were soft and flabby, and had never been brought into full function. There was practically no grit in either of them.

M. S. C. No, not B.W.D., but infectious pneumonia.

J. E. H. R. All the bodily organs were healthy, and there was no obstruction to breathing to make her breathe through the mouth as observed. A clot in the brain was the cause.

J. G. M. Two of the three chicks had the coccidiosis disease in the heart, with its typical white swellings, and the other had it in the caeca or blind gut, where it has been so long recognised. You did *not* "enclose" the p.o. mentioned.

K., Hants. One of the W.L. chicks had B W.D. The other two were the subjects of pneumonia.

Essex Roses. The chicks had pneumonia. The engorgement of the lungs is so rapid that they are quickly intoxicated, and this accounts for the apparent suddenness of the attack. In reality there has been a period of incubation.

P. S. Infectious coccidosis was very marked in one of the chicks, and both were rickety. The gizzards were flabby and undeveloped. They need more dry corn and grit. All that have been in this house and on the same run should be given water impregnated with catechu to the extent of about fifteen grains to the gallon; allowing no other for a month or more. It is a homeopathic dose, but its use brings excellent reports.

"Downie Park." Brooder pneumonia is the trouble in these chicks. Treatment of those affected is of no use, but you may fortify the remainder by giving forty grains of citrate of iron and quinine in each gallon of drinking water. It is very infectious.

S. S. (North Wales). Yes, it is a poisoning, but not with lethal drugs. It is a blood poisoning by a specific bacterium, and the source is not always to be found. Ducks will go to dead subject, and contract it, but the infectious carcase may not be traced.

S. K., Jun. No, it isn't B.W.D., but a digestive disturbance.

W. A. They were all cases of pneumomycosis. The caeca were healthy, as were the other organs. I would like to thank you for an explicit letter, and a model I wish could be printed. You should find no difficulty in diagnosing pneumonia with your trained powers of observation. Whether of the infectious or sporadic kind, the substance of the lungs looks dense and like liver, instead of pink and cellular. In the sporadic or accidental type, the lung appears to be about the same density throughout; in the infectious form, caused by the spores of a fungus, there are tubercles of a lighter shade, as a rule, and varying in size from a pin-head to that of half-a-horse bean. Buy an ounce of citrate of iron and quinine in a well-corked bottle, as it is disposed to attract moisture from the air. If you have no scales, use a heaped-up sixpence, as measuring approximately forty grains, for a gallon of water. Kill a cripple by hitting its head against the wall (not by necking), and then examine the lungs, for comparison with a pneumonia case.

F. M. (Oxon). The other case was duly reported, but you give different letters as noms de plume and then do not recognise them in print. An hour has been spent in looking up duplicates to obtain this information. I finish up about 5s. to the bad over folks who will not comply with the rules, although appealed to by circular. The chick sent this time had the belly chilled, peritonitis followed, and when opened the gizzard and bowels were all grown to the side (adhesions by organised lymph).

Mrs. F. E. A. They did not all die from the same thing. (1) Peritonitis, caused by hardening of the yolk sac and acting as a foreign body. (2) Pneumonia. (3) Defective heart with white swellings (coccidial). (4) Pneumonia. (5) Pneumonia.

Uveco. Both ducklings had pneumonia. In one, the characteristic tubercles were present which are diagnostic of the infectious pneumomycosis caused by the spores of a fungus.

R. C. So you "could find nothing wrong" with this hen, and she was associated "with 180 birds in a semi-intensive house." Yet she had long been affected with generalised tuberculosis and was not only a loss by her keep, but a perpetual menace to the flock. All the organs were simply full of tubercles, but the final collapse was through the bowel becoming blocked. Why not trap-nest, and cull? Apply to the Secretary, Ministry of Agriculture, for a free copy of Leaflet No. 78, and give it your careful consideration.

Felix. These are pneumonia cases. The chicks had done fairly well, and had plenty of red blood. The latter may have been enriched by the iron tonic. The prospect of warmer weather may be expected to help the situation, but do not relax your antiseptic precautions. It is something to think that you can adopt so happy a nome de plume. Most folks write in *misere*, and their address might be the *via doloroso*.

Mrs. B. (N. Devon). The chick had long been effected with coccidiosis, the bowels being filled with disease products and tied together by peritonitis excited from within. With a good constitution, it had made a good fight. You are advised to adopt the catechu treatment, as this is not likely to be an isolated case.

R. I. R. P. The liver in this case was not "covered with a greyish mottling." It had gone a stage further, and broken asunder, and the abdomen was flooded with blood. Fatty infiltration was the condition. Those you refer to were in the gouty stage, and you may think perhaps that I more nearly describe the appearance when I say that it looked as if flour had been dusted on to a moist surface! Fast, and give salines, and reconsider the ration. Fish meals, especially those with a high percentage of oil, are a frequent cause of this liver disease.

L. B. W. This hen succumbed to a very common trouble among good layers. Forming eggs had died upon the "stalk," and auto-intoxication followed. A pause is needed such as will afforded by 24 hours of fasting, and a teaspoonful of salts between each half dozen birds every morning for about a week.

H. LEENEY.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Breeding for Egg Production.

By G. C. HESELTINE

In previous articles on the L2 Factor I endeavoured to show to what extent the findings of Pearl could be relied upon and used by practical breeders. The conclusions which emerged from the consideration of the work of Pearl supported the present S.P.B.A. rules for mating and breeding. These rules, I think I am in order in saying, do not pretend to scientific accuracy, which in the present state of our knowledge of the subject is impossible, but they are framed to keep breeders "on the safe side," and to be practicable for beginners and others who are not able to give a thorough study to the subject from a strictly scientific point of view.

In this connection it is interesting to consider the work of Major C. A. Hurst, which is the most practical and extensive work done on the subject so far in this country. It may be remembered that I explained in my previous articles the limitations of Pearl's findings, and stressed his warning that his work did not claim to be applicable to all breeds under all conditions, suggesting that his figures at any rate might well be inapplicable in other climates. Hurst worked on White Leghorns and White Wyandottes which are far more generally used in this country than Barred Rocks and Cornish Indian Game (Pearl's stock). It is therefore particularly interesting to see how Hurst's findings compare with Pearl's.

Hurst's work dealt with several factors with which Pearl was not directly concerned—e.g., the egg colour, and egg size factors—and altogether identified seven pairs of genetic factors with "Egg Production." We will first consider the factors most nearly connected with Pearl's work, although it must be borne in mind that these factors are to some extent dependent on, and interact with, other factors enumerated by Hurst, such as those affecting rate of maturity, etc. Hurst found that the rate of winter production (Pearl's basis) was determined by the presence of two factors W and w (i.e., fast rate and slow rate), thus confirming Pearl's findings of the two factors (L2 and L1) although with two differences—namely (1), that whereas Pearl found that the L2 factor was sex-linked with Barred Rocks (that is, it was handed on from father to daughter and mother to son only), Hurst found that the corresponding factor W would be handed on by mother to son and daughter alike; (2) that zero winter producers, which Pearl inferred carried none of the winter production factors, were found by Hurst to carry one of them in at least three cases. With this second difference we are not greatly concerned, because with strains which have been bred for egg production at all "genetic" zero winter producers are very rare, and I think it very probable that when zero winter producers occur they can nearly always be safely classed as "somatic," i.e., due to some "bodily cause" and not genetic or inherited.

If I might hazard a suggestion, it is that the three cases referred to by Hurst were of this nature, but it must be assumed that the investigator considered this possibility and had good reason for discarding it. My only reason for putting forward the suggestion is that, from a practical point of view, there are so many things which can prevent a bird showing its genetic composition by the eggs it lays—so many things which may affect a good layer so that she actually performs as a bad layer. I mean, of course, physical defects as well as errors or omissions in feeding, management, etc. On this account it may be observed in passing that some of the results included by Hurst in his tables are very unconvincing. I am referring to those in which the product of a mating is two females, and the expected result of, say, 50 per cent. of one kind and 50 per cent. of another is obtained, the figures being 1 and 1. This criticism applies to some extent to the whole of Hurst's tables of results—the numbers of birds dealt with are small. It must, of course, be admitted that one experiment done with perfect accuracy is sufficient to justify the inference of a conclusion, but practical breeders will know the tremendous difficulties in the way. These difficulties, the sources of error, can only be eliminated from the result by "averaging them out" over large numbers.

To return to the main point, it is that Hurst confirms Pearl as far as the presence of the two factors is concerned. It is further to be noted that the observations taken by both investigators for the winter factors were taken for the same period, i.e., from the first egg to March 1st. In Pearl's case the figures assumed normal hatching date for the bird; in Hurst's case this is eliminated by taking percentage yield, and only considering it where the number of "days in lay" is 50 or over. This latter is clearly a fairer method, for in Pearl's experiment, if a bird is late hatched, she may not come into lay in time to do 30 eggs before March 1st, if she would normally lay, say, an egg every other day. Such a bird, if in lay 50 days before March 1st would lay 25 eggs and be below the 30 line for Pearl, but above the limit of slow birds for Hurst. The same would apply to a bird normally hatched but a slow maturer or delayed in maturing. Now, although the method of arriving at the bird's class (L2 or L1, W or w) differs, both investigators placed the dividing line at about the same point. Pearl actually used 30 eggs as his dividing line, and Hurst used 8 grades of percentages ranging from 8 to 1 (in the experiments the percentages ranged from 83.6 per cent. to 14.7 per cent.), and placed his dividing line between 2 and 3, i.e., at about 30 per cent. Pearl's 30 eggs would at the worst represent 25 per cent.

(for a bird hatched at normal times). The agreement between the two investigators, though not complete, is surprising in view of the nature of the investigations, and the environmental differences as well as the differences of breed. The S.P.B.A. rules, in placing the dividing line a little higher, therefore place it quite high enough **for breeding purposes,** whilst at the same time providing a margin of safety.

The practical breeder is concerned mainly with the birds carrying the higher factors, for it is from these only which he will breed, but he must be on the look out for birds carrying the lower factors in order to trace the factors to their parents. The only way to raise the standard of production in the strain permanently is to secure breeders which give only high-producing pullets and not a mixture of high and low producers. By keeping accurate records the breeder can trace pullets to their dams and sires, and not use again those dams and sires which have given a mixture of low and high producers. Further to that, the high-producing pullets themselves should not be reserved for breeding if they come from parents which have given "mixed" progeny, for some of them will give mixed progeny in their turn. This process of testing and sifting is essential to the quick and permanent formation of a sound laying strain. The S factor (rate of Spring Production) and M factor (rate of autumn production) of Hurst will be considered next week.

SPRING MANAGEMENT OF BEES.

By E. D. D. MADOC.

It is important that at this period to see that the bees have every assistance to enable them to rear the largest number of young bees, so that when the honey flow arrives in about a month's time, the hive shall be teeming with young and active bees ready to take the fullest advantage of the few short weeks when honey is really abundant.

Emphasis must be laid on the necessity for getting these young bees reared before the honey flow; it is easy enough to get the bees to rear unlimited quantities of brood during the flow, but it is not wanted then. In the first place, less honey is stored, both because much of it is fed to this young brood, and because many bees have to stay at home seeing after the "babies" when they might be gathering honey; secondly, this brood finally hatches out after the honey flow is over, when these young bees merely add to the horde of useless consumers without having in any way benefited the colony, in return for the time and honey expended upon them.

A young queen is essential for best results. and should have been introduced last autumn or summer. The amount of stores must be carefully watched, and any deficiency made good, either with combs of honey held in reserve, or by feeding syrup.

When brood rearing is in full swing a very large amount of stores are consumed, and a stock plentifully supplied may be found after a week of bad weather, with scarcely any food left, and unless help is speedily forthcoming, the bees will frequently stop brood-rearing, and even throw out some of the young brood, resulting in a serious check at the least, at a time when every bee is so valuable.

No overcrowding must be allowed, and with the modern prolific strains of bees it is generally sound practice to give a second brood chamber, so that the queen may have unlimited room to lay at this time; and, later, when the honey flow commences, the queen may be confined to one brood chamber again by means of a queen excluder.

At this time of year, especially, when the nights are cold, and the hives contain large quantities of brood, which has to be kept warm by a none too large force of bees, the question of protection is important. Protection takes two forms. First, the actual protection of the bees by the hive; and, secondly, the protection afforded by the locality in the position of the hives. Of the two I am inclined to think the latter is more important.

Protection from wind is most important, and the site chosen should be well sheltered, especially from the prevailing winds.

Given a sunny, well-sheltered corner, it matters little in this climate whether the bees are in single or double-walled hives, but the top should be kept warmly covered, and the roof must be waterproof.

FIFTH MIDLAND LAYING TEST.

SECOND QUARTERLY REPORT—JANUARY 27th TO APRIL 20th, 1924.

This period of the Test has been noticeable for rapid and extreme variations in temperature, especially during March, when we were subjected one day to bitter east winds and the next probably bright or changeable weather. The average daily temperature has varied as much as 10 to 12 degs. Fahr. The minimum temperature recorded is 26 degs. Fahr., the highest 57, the average being 41.5.

The Light Breeds are still far behind the Wyandottes, etc., in their egg yield, but they are daily inclined to improvement, whilst the Heavy Breeds now decline in production, due to broodiness.

Birds which have been broody during the quarter are:—Nos. 184, 202, 276, 277, 391, 383, 313, 327, 329, 338, 339, 340, 381, 392, 159 and 245.

The feeding system is as usual, Dry-cum-wet mash and grain, the only difference being in the hours of feeding, grain in the morning being fed at 7.30, wet mash at 2.30 p.m., and the evening feed of grain scattered in the litter inside the pens at 7.30 p.m. The dry mash is available at any time during the day.

The average egg yield per bird has increased during the last month, and is now just over 16 eggs per bird.

Individual records run highest among the Wyandottes. One Wyandotte, No. 436, the property of Mr. Gee, Bromsgrove, whose pen still retains the leading position, has laid 156 eggs in the 168 days. A close second to this is Messrs. Fowlers' bird, No. 171, also a Wyandotte, with a record of 154 eggs.

The general health of the birds for the quarter is quite good, until recently only a few birds being in the hospital, under treatment for colds, etc.

The complete list of deaths from the commencement of the Test, up to April the 20th, totals 13, and the numbers are as follows:—27, 50, 53, 166, 330, 235, 103, 165, 9, 23, 76, 81, and 285.

THREE LEADING PENS IN EACH SECTION.

SECOND QUARTER—Jan. 27th-April 30th.

Pos.		Pen Total.	Value.
	White Leghorns.		
1.	C. H. Hudson and Son, Coventry ...	355	£4 1 10½
2.	E. Harrison, Knutsford	367	£3 19 0
3.	H. Boxall, Dorking	356	£3 17 11
	W. Wyandottes.		
1.	H. W. Gee, Bromsgrove	559	£6 3 6½
2.	Fowler Bros., Earlswood	541	£6 0 4
3.	S. and T. Greenall, Grantham ...	423	£4 19 5¼
	Rhode Island Reds.		
1.	Maj. Kingscote, Newport Pagnell ...	372	£4 5 9½
2.	Easton P.F., Norwich	354	£3 15 10½
3.	Miss M. Grehan, Banteer	361	£3 14 9¾
	Light Sussex.		
1.	Fred Gardner, Stalham	370	£4 2 5¾
2.	F. B. Welch, Bewdley	332	£3 12 1
3.	Mr. and Mrs. Jacobs, Chatham ...	287	£3 2 8¼
	A.O.V. Light Breed.		
1.	M. H. Brady, B'ham, Anconas ...	333	£3 6 11
2.	G. C. Woodbridge, Anconas ...	292	£3 2 1½
3.	R. B. de Vere Packford, B. L'horns	255	£2 14 10¾
	A.O.V. Heavy Breed.		
1.	H. Thomas, Rochdale, Buff Orps. ...	336	£3 15 2¼
2.	W. Hamnett, Bl'kpool, Buff Rocks	265	£2 16 7¾
3.	Maj. Shewell, Barnevelder ...	257	£2 12 8¼

MIDDLESEX BRANCH OF THE POULTRY CLUB.

A meeting was held of the Middlesex Branch of the Poultry Club on Monday, May 5th, at 80-82, Wardour Street, London, W.1.

The business comprised the introduction of the new Middlesex Poultry Instructor. What he proposes to do and how he hoped to work in co-operation with the Committee, was fully discussed with every possibility of admirable results.

A very handsome silver cigarette case, suitably inscribed by all the members of the Committee, was presented to Mr. Bruce Wilcox, in recognition of what he has done for the Middlesex Branch of the Poultry Club and the Middlesex Poultry-Keepers in general.

It was agreed that a special effort would be made this year for one of the two delegates to visit every show held under Poultry Club rules in the County. The question of insurance of the Silver Cups, re certificates won by club members at Bethnal Green, and a request for delegates to attend Twickenham and Hornsey Shows, were all agreed to.

CARRYING ON.

By Lieut.-Colonel F. S. MACRORY, D.S.O.

(*Continued from Page* 384).

JUNE, 1923.—Cut the hay, and found my young chicks again, considerably grown in stature after their experiences in the jungle. Started separating cockerels from pullets during the long summer evenings. Bought several tons of potatoes at 15s. a ton (the general-farmer's life, like the policeman's, is not a happy one) and concentrated on filling up those young cockerels as fast as possible. Hired several ladies of very uncertain age to pluck and dress the young gentlemen, who were then despatched to various large hotels at contract prices of 1s. 2d. per lb., live weight. They netted me about 3s. each, and I sold nearly 1,000 of them during the season.

JULY, 1923.—Started moving the pullets into their permanent quarters.

AUGUST, 1923.—Stopped pullet-moving to take a much-needed holiday in England, in order to see the sun—and the dry earth—and the other luxuries which a kindly Providence has granted to the inhabitants of Great Britain.

END OF AUGUST, 1923.—Returned from England, much sun-burnt, and found the ladies still plucking the gentlemen (they always do when they get the chance), and the rain still coming down.

SEPTEMBER, 1923.—Began to take an interest in the doings of the eldest pullets, who had lately started producing things by the courtesy called eggs. Selected the 1924 breeders as in 1923.

OCTOBER, 1923.—Took an increased interest in the performances of the pullets, many of whom might now truthfully claim to be laying *eggs*.

NOVEMBER, 1923.—Rigged up electric light for all pullets, and all hens, except the prospective mothers of the 1924 race, who were encouraged to live a quiet life, and go in for twilight sleep.

DECEMBER, 1923.—Continued collecting eggs and endeavouring to sell them at double their proper value.

OCTOBER, 1923.—(The cart got a little in front of the horse just now, but I will put him right in a minute). Was invited by the Government of Northern Ireland to attend before a "Development Commission," and give evidence as to the Egg Industry in the Six Counties. Attended and spoke fluently, and at times truthfully, to a Commission, who listened with bated breath for the space of two hours. Evidence reported at great length and considerable inaccuracy in all the daily papers of the province. Many leading politicans, lawyers, doctors, professors, and others left contemplating whether to throw up their professions and start egg collecting. Crossed to England and visited the Dairy Show. Returned to Ireland, and found a letter from the Income Tax Surveyor summoning me to yield up a goodly portion of my ill-gotten poultry gains from the date at which I started making such gains—*vide* reports of my evidence before the Commission.

NOVEMBER/DECEMBER, 1923.—My Pegasis is now getting in front again (as I said he would). Continued collecting eggs, and started my great fight for liberty against the Income Tax Assessor.

DECEMBER 25th, 1923.—Christmas Day. Forgot that such things as hens and assessors existed.

DECEMBER 26th, 1923. — Remembered those things that I had forgotten. Attended to the hens, but let the Assessor go hang for the present.

JANUARY 1st, 1924.—New Year's Day. Made usual resolutions, and decided, in addition, to have my poultry books audited.

JANUARY, 1924.—Auditing of books. Made one very valuable discovery, when I saw the auditor turning over pages of my books by means of a little rubber glove on one finger, technically known, he informed me, as a "Ledger Protector," as it did away with the old-fashioned finger-in-the-mouth idea. Remembered the labour of egg-turning by the "hand-to-mouth" method, and promptly ordered three "Ledger Protectors."

FEBRUARY, 1924.—Started incubating. "Ledger Protectors" a huge and unqualified success. Decided to patent this invention, but, more generous thoughts intervening, resolved to make a present of it to all readers of "Eggs," though possibly the Editor will decide to charge extra for this number.

During this month (in the language of Old Moore) a great change was made in the office department of the business. It was decided to move the Seat of Custom from the private Dwelling House to an outside apartment, now dignified by the name of "Office." A chaste oil-cloth was purchased for the floor, a roll-top desk installed, and the walls beautifully decorated with those most excellent and artistic Handling Charts, supplied by the Editor of "Eggs," at a very trifling cost. These charts are most perfectly turned out in colours, and are simply invaluable to the commercial egg-farmer.

FEBRUARY/MARCH, 1924. — Incubated with somewhat indifferent results (in spite of the "Ledger Protector"). Assisted to design and instal a new hot-water brooder, capable of brooding five batches of 200 chicks apiece at one time. Most successful invention—operator's life no longer appreciably shortened. chicks' lives appreciably lengthened. Tendency to leg weakness much reduced, but not altogether conquered. A great further advance in this direction lately made by the addition of raised ventilated platforms under the hovers, and leg-weakness is now practically non-existent. The cost in coal of running this brooder is about one shilling per 24 hours, and a few minutes' attention every six to eight hours, keeps the stove burning merrily. A constant supply of hot-water is available in the boiler house for washing dishes, so that this invention may really be said to be thoroughly satisfactory.

That very clever little instrument recently advertised in "Eggs," and known as the "Eggometer," has also been in use for the last few weeks. All eggs for incubation are now selected by means of the "Eggometer," and the writer is extremely hopeful as to the eventual benefits which will be derived through its use.

One very successful user of Gloucester incubators has just informed me that she invariably sprinkles the eggs twice daily in these incubators. Tests just made in my own incubators with the "Tycos" Hygrometer prove to me that this liberal sprinkling is absolutely correct, *if* the "Tycos" people's idea of moisture during incubation is correct. And I am very much inclined to believe they know what they write about. So I have likewise become a sprinkler, and am hoping that my incubating troubles are gradually being solved, even as my brooding troubles have already been solved.

Then, when the foreign egg is at last distinctly marked with its brand of infamy, we shall have reached the millenium as far as poultry farming is concerned.

I must now stop this article, as it is already far too long. But though I stop *writing* about hens and eggs, and such like, I think that as far as *keeping* them goes (having not yet completed making my pile), I must perforce still CARRY ON.

Correspondence.

DUCKS *v.* HENS.

To the Editor of "Eggs."

Dear Sir,—I cannot refrain from referring to Mr. Whitby's letter which appeared in your issue of the 9th April last. This letter frankly states that, in the writer's opinion, and to use his own words, "the duck is a paying proposition under certain conditions, but that it is suffering from being over-boomed." Mr. Whitby suggests that the U.D.C. management are of the same opinion, and bases his argument on certain articles appearing in the Year Book, which seem to utter a note of warning to prospective duck-keepers.

I feel sure that nothing would be further from the minds of the members of the Committee than to deter those who are thinking of starting to keep these birds.

It must be obvious that whatever stock one attempts to rear there are always pitfalls against which one must be on one's guard, and it seems to me that the U.D.C. has honestly attempted to instruct the novice and others in the way they should go, rather than suggest to them that they ought to leave duck-keeping severely alone. To infer that ducks suffer from disadvantages which outweigh their merits and that they are distinctly inferior to hens in consequence, is an over-statement which one cannot permit to remain unanswered.

It would take up too much space to enumerate and reply individually to the various points raised by Mr. Whitby, but, speaking generally, all his criticism could equally be levelled at the hen. Furthermore, it is material to point out that if the cost of food is slightly greater, nevertheless the egg yield may be expected to be greater also, while the expense of housing can be reduced to a minimum; that adult ducks are practically immune from disease; that duck eggs can be and are pickled with success in spite of anything that Mr. Whitby may say to the contrary; and that the adjacent farmers in the majority of cases welcome ducks ranging over their fields.

Mr. Whitby can rest assured that ducks have assumed their position in the limelight on their own merits rather than as the result of any over-booming which has been done on their behalf.

Yours very truly,

JOHN DRINKWATER.

Ballabrooie, Douglas, Isle of Man.

APPLICANTS FOR MEMBERSHIP.

Fisher, T. M., Craig-y-Darna, Longforgan, Perthshire.
Parker, F. E., Langlands, Kintore, Aberdeen, Scotland.
Mackintosh, J. F. (M.C., U.D.A.), Stokethill House, Foresterhill Road, Aberdeen.
Medworth, E. A., 9, Thistlemoor Road, Peterborough.
Marlow, W. H., Stannington, near Sheffield.
Das, Mr., Twijinstraat 60, Utrecht, Netherlands.
Barrett, F., Langham Wood Lodge, Colchester, Essex.
Castle, Miles, Westover, 38, Park Road, Tring.
Pearson, J., 116, Marrowbrook Lane, Cove, Farnboro', Hants.
Dudley, A. C., Elmhurst, Eastchurch, Isle of Sheppey.
Grant, J. V. L., M.B., The Manor House, Wilnecote, Tamworth.
Banks, J. Smith-, Paradise Farm, Lawshall, Bury St. Edmunds.
Papworth, Fred, Flas Cottage, Fletton, Peterborough.
Oliver, A. E., Worting, near Basingstoke, Hants.
Wilson, R. T., 3, Mount Avenue, Orrell, near Liverpool.
Irish, Mrs. M., Fanningstown House, Piltown, Co. Kilkenny.
Cook, J. D., Ravensworth, Richmond, Yorks.
Pritchard, H. J., South View, New Street, Ledbury, Hereford.
Parkinson, Arthur, 105, Langroyd Road, Colne, Lancs.
Brown, G. H., Beechwood P.F., Cornerways, Matfield, Kent.
Viner, H. E., "Sun Cottages," Burghfield Common, near Reading.
Simons, L. Scott-, "Upland," Bredfield Road, Woodbridge, Suffolk.
Lilley, F. G., Rigsby, Longfield, Kent.
Bowden, Mrs. A., Heddon Mill, Wylam-on-Tyne, Northumberland.
Martin, Wm., The Cottage, Church Street, St. George's, Wellington, Salop.
Killingbeck, Clifford, Gate Farm, Thornhill Edge, Dewsbury.
Pickering, Miss G., Cedar Cottage, The Outwoods, Hinckley.
Osborne, E. T., 3, Acacia Villas, Upton Road, Bexley Heath, Kent.
Newby, A. W., Park Farm Cottage, Knockholt, Kent.
Rawson, A. E., Log Cabin, Sleaford Road, Boston, Lincs

THE POULTRY CLUB.

The Monthly Meeting of the Council was held on Friday, May 9th, 1924, at 2 o'clock, at the London Chamber of Commerce, Oxford Court, Cannon Street, London, E.C.4.

Present: Mr. William W. Broomhead (Vice-Chairman) in the chair; Messrs. W. J. Golding, R. Fletcher Hearnshaw and Wm. Rice (Past Presidents), Messrs. A. H. Brownson, Harold Corrie, C. N. Goode, and Carlton Hunting (Vice-Presidents); Miss Gordon Barrett, Captain Coulson, Messrs. Frank W. R. Douglas, Godwin Edwards, Dr. A. G. Everard, Bernard Finch, E. L. Frank, A. P. F. Grant, Lieut.-Colonel W. G. Lucas, Harold Marshall, L. F. Outram, Arthur C. Powell, W. Powell Owen, D. E. Riley, Alfred Skinner, George Smalley, Alderson Smith, Leslie Williams.

Absent: Major Tom Potter and Clem Watson (attending World's Congress at Barcelona), Mrs. C. Colbeck, Mrs. Thurnall, Mrs. Harry Kent, Captain R. R. Allen (ill), Harry Hudson (ill), Frank Boothroyd (ill), Captain Jno. W. Smith, W. Venn Carr, R. Compton Bishop, Captain S. W. Clift.

The Chairman extended a hearty welcome to Mr. Alfred Skinner, new delegate for Yorks, one of the hardest workers we have; and to Mr. Arthur C. Powell, the Club's Auditor, who was making a first appearance after his long illness.

The Minutes of the last meeting were read and confirmed:

New Members. The following were elected:—

Berks.—Mr. Geo. H. Billett, Glen Helen, 8, Warwick Road, Reading.

Cambs.—Messrs. Coote and Co., Poultry Breeders, Main Street, Littleport.

Essex.—Mr. E. E. Dowson, The Oaks, Hawkesbury Bush Lane, Pitsea.
Miss M. Window-Harrison, Yew-Tree Poultry and Goat Farm, North Weald.

Hereford.—Major Allfrey, Norden Hall, Leominster.
Miss Anderson, Canon-Frome Poultry Farm, Ledbury.
Mr. F. C. Appleton, Hill House Poultry Farm, Bodenham.
Mr. Baxter, Stretton House, Stretton Lugwas, Hereford.
Mrs. Clapham, Sherriffs, Lyonshall.
Mr. Don Davies, Pigeon House, Yark Hill, Hereford.
Mr. Davies, Claston, Dormington, Hereford.
Mr. Tom Goodwin, Huntington, Hereford.
Captain Lionel Green, The Whittern, Lyonshall.
Mr. Griffiths, Mayfield, Belmont Road, Hereford.
Mr. T. D. Morgan, Withington, Hereford.
Mrs. Spence, Windyridge, Lyonshall.
Mr. Shelly Stedman, Yark Hill, Hereford.

Herts.—Mr. H. Howarth, Woodlands, Weston, Stevenage.
St. Stephen's Poultry Farms, Bourne End, Boxmoor.

Kent.—Lieut. G. Sachnovsky, Ersham House, New Dover Road, Canterbury.

Northants.—Mr. Samuel James Marsh, Pedigree Poultry Farm, Sudborough, Thrapston.
Mr. B. Measures, Hemington Manor, Barnwell, Peterborough.

Notts.—Mr. A. Holwell, Hempshill, Nuttall, Nottingham.
Mr. H. H. Smith, Lamcote Fields, Radcliffe-on-Trent.
Mr. R. H. Swain, J.P., The Manor, East Bridgford, Notts.
Mr. A. Wild, Tollerton, Nottingham.

Sussex.—Messrs. Lindley and Rogers, Gate House Farm, Hurstpierpoint.

Wilts.—Major W. M. J. Martin, Boreham Manor, Warminster.
Beds.—Mr. W. S. Brocklehurst, Grove House, Bedford.
Cambridge.—Mr. J. Fardell, 332, Mill Road, Cambridge.
Devon.—Mr. E. A. Jones, Hillstead, Church Street, Paignton.
Mr. E. F. Sibleth, The Weka Poultry Farm, Grey Coat Lane, Newton Abbot.
Essex.—Mrs. N. M. Crawford, Southey Cot, Sible Hedingham.
Salop.—Mr. A. E. W. Darby, Adcote, Shrewsbury.
Major T. A. Wilkinson, Dorrington, near Shrewsbury.
South Wales.—Mr. R. B. Price, "Briton," Rhayador, Radnor.
Sussex.—Mrs. E. V. Turner, Hampden Park, Eastbourne.
Mr. Lionel Turner, Hampden Park, Eastbourne.
Warwick.—Captain E. G. Spencer Churchill, M.C., Northwich Park, Blockley, Worcs.
Wilts.—The Warren Poultry Farm, Brigadier-General G. L. Palmer, Berryfield, Bradford-on-Avon.

The following were associated:—

Bucks.—Eton Wick Horticultural Society.
Cheshire.—Willaston and District Horticultural Society. Mr. Geo. Wm. Webster, The Nurseries, Willaston, Birkenhead.
Gloucester.—Warmley and District Allotments, Ltd. Mr. A. R. Williams, Bath Road, Warmley, Bristol.
Herts.—London Colney District Fruit and Flower Show. Mr. T. L. C. Bluett, London Colney Vicarage, St. Albans.
Northants.—Midland Counties General Industrial Exhibition. Mr. J. H. Wilson, St. Katharine's Street, Northampton
N Wales.—The Waterfowl Club. Mr. A. E. Brewin, Llysmeirchion, Henllán, Trefnant, North Wales.
Crewe and District Fur and Feather Society. Mr. A. Bloss, 471, West Street, Crewe.
Wem and District Agricultural Association. Mr. Philip Lee, Wem, Salop.

The Conference at Llandudno, June 18-19, 1924.—Details of programme were not complete, but the Hon. Secretary was authorised to issue them to the press at the earliest moment.

THE UTILITY POULTRY JUDGES' REGISTRATION BOARD (provisionally known as Examination Board) will issue at once a revised edition of its preliminary prospectus, giving fuller particulars of the examination for registraiton and names of first panel of examiners. Amongst the changes already agreed upon by the Board and the Councils of the N.U.P.S. and the Poultry Club are:—

1. Up to June 30th, 1925, the Certificate will be issued without examination on payment of a fee of 10s. 6d. to:—
   - (a) Persons receiving the unanimous vote of the Board.
   - (b) Persons who have judged at least fifty Utility Shows during the last ten years.
   - (c) Persons nominated by not less than six members of The Poultry Club Council and six members of the N.U.P.S. Council, **and approved by the Board.**
   - (d) Persons nominated as satisfactory judges by the Committee of not less than twelve "Utility" shows of good standing, **and approved by the Board.**
2. In view of the importance of the Utility Duck breeding section of the industry, **two representatives of the Duck Industry will be invited to join the Board.**
3. The fee will be reduced to one guinea, **except as stated in Clause 1,** to be paid into a joint examination account of the N.U.P.S. and The Poultry Club.

Nominations for National Poultry Council.—Vice-President: Mr Clem Watson. Treasurer: Mr. A. H. Brownson. Auditors: Mr. E. Collier and Colonel Sandbach. Representatives: Harold Corrie, Edwin Marshall, R. F. Hearshaw, W. W. Broomhead, Major Tom Potter.

Delegates to National Poultry Parliament.—Captain S. W. Clift, Captain G. C. Heseltine, Mr. Alfred Skinner, Mr. H. Pickford, Mr. C. N. Goode, Mr. A. P. F. Grant, Miss Gordon Barrett.

Official Representatives for Olympia Show, December 9-11, 1924.—The Council appointed Major Tom Potter and William Rice.

Official Representatives for Royal Counties Show.—As the two previously appointed Major Tom Potter and Harold Marshall will be attending a special meeting of the N.P. Council at Birmingham on June 5th, Miss Gordon Barrett and Mr. D. E. Riley were asked to act.

Two Useful Suggestions.—Mr. Alderson Smith proposed, Mr. Harold Marshall seconded, and it was carried, that Hon. Secretaries of Branches be recommended to keep for the use of County members (1) A list of Members' Breeds. (2) An employment register.

A Presidential Badge.—Mr. Alderson Smith moved that a suitable badge be worn by the President of the Club at the Council Meeting, and at all functions attended by him in his official capacity during his year of office. Also that members of the Coucil have a special form of membership badge to be worn during their term of office. The Council approved the principle, and asked the Specials Committee to report on the matter.

The President's Cup Competition is becoming keener. The highest scores are: Kent, 29; Middlesex, 28; Notts, 24; Hereford, 22; Essex, 20.

County Branch Reports.—The Secretary, Captain J. W. Smith, reported that the new Middlesex Poultry Instructor had attended their meeting on May 5th. His scheme of work was outlined, and the committee felt it would be able to co-operate with him with the best results for the industry. A very handsome silver cigarette case, suitably inscribed by all the members of the committee, was presented by Mr. Bruce Wilcock, in recognition of his good work for the Middlesex Branch of the Poultry Club. It was agreed that a special effort would be made this year for one of the two delegates to visit every show held under Poultry Club rules in the county.

Next meeting will be held on June 13th, at two o'clock. Utility Committee to meet at noon.

WILLIAM RICE (Past President).

The Ludgate, Broadway, London, E.C.4.

We are asked to announce that there may be some little delay in the appointment of Director of the National Poultry Institute at Harper Adams' Agricultural College, as the Governors have decided to invite applications from Canada and the United States. It is unlikely, therefore, that any appointment can be made before the middle of June.

GLAMORGAN AGRICULTURAL COMMITTEE.

COUNTY EGG-LAYING TRIALS.

SECTION—LIGHT.

	No. of Eggs, 7th Month.	Total for 7 Months.
Temp. Position 1—Pen No. 16. ...	79	379
,, ,, 2— ,, 2. ...	80	378
,, ,, 3— ,, 6. ...	75	381
,, ,, 4— ,, 7. ...	83	355
,, ,, 5— ,, 10. ...	80	361
,, ,, 6— ,, 22. ...	86	355

SECTION—HEAVY.

Temp. Position 1—Pen No. 4. ...	88	343
,, ,, 2— ,, 3. ...	75	372
,, ,, 3— ,, 29. ...	70	349
,, ,, 4— ,, 21. ...	46	364
,, ,, 5— ,, 24. ...	42	309
,, ,, 6— ,, 30. ...	89	353

ANSWERS TO QUERIES—Continued.

Worried (Yarmouth). Please note we cannot reply to non-members of the S.P.B.A. by post. Your suggested mash will not answer at all; locust meal has very little value where egg production is concerned. You must make up your mind to use animal protein in some form, your mash is very deficient in protein. You cannot use dried yeast in the place of meat meal in the mash, neither can you replace the clover meal with bone meal, as there must be a plentiful supply of green food now. The mash for laying stock is parts by weight.

M. K. L. (Londonderry). (1) It appears contradictory, but the mash referred to is a highly forcing mash, intended for mediocre stock, to get as many eggs as possible from them in a short period before disposing of them. It should not be given to stock intended for breeding or for high-class pullets. (2) Yes, the lime, when dry, would be more or less a powder, somewhat lumpy, but it was mixed 2 per cent. in the dry mash, and the birds got sufficient; also they ate it readily from a hopper, but now that oyster shell and limestone grit can be obtained so cheaply it is not worth the trouble. That was a war-time measure.

"Distress" (Bournemouth). I am afraid you can do nothing for the chicks, you ran the machine at too high a temperature all through, consequently the few you did get were prematurely hatched. Cod liver oil would not help them in the least. Believe me, there is nothing so unprofitable as attempting to rear unhealthy or weakly chicks. (2) There is no necessity to buy either clover or alfalfa now there is so much green food to be had.

R. J. L. (Oxford). Your question is rather a peculiar one. You say, "What maximum and minimum temperatures must I not exceed?" and that you are running the machine at 105, 104, 103 degrees. It is not a question of exceeding. You must endeavour to run as near these temperatures as possible. (1) No chicks should be given any food whatsoever for at least 48 hours, neither grit nor water. (2) You cannot hatch duck and geese eggs in the same incubator at the same time. You should run the goose eggs at 101 degrees, rising to 102, and the ducks at 102 throughout, supplying moisture in both cases from the first. (3) The diarrhoea in odd individuals may be caused by some digestive disturbance in the day or two which prevents the proper absorption of yolk.

L. R. (Congleton). This is not pea meal, but maize gluten feed, and it should be much cheaper than the former. I cannot understand how it was sold to you as pea meal. You can use it as you are doing now; it is a fair sample, but the percentage of maize offals is rather high.

H. N. S. (Bradford). Toppings are only a moderate sample; we want something more "floury." The fish meal is rather moist, and I am inclined to think that the percentage of the oil-content is higher than stated, otherwise it is good value at the price.

G. P. L. (South Kilworth). The germ meal is a very good sample, the fish meal of average quality, but, like most samples of gluten feed that come to hand in these days, the gluten feed contains an excessive percentage of maize offals which, being of low nutrient value, make it an expensive food.

Many Answers to Queries unavoidably held over until next week.

POST-MORTEM

Col. O. G. D. J. Ruptured oviduct, escaped contents. Peritonitis.

MIRFIELD AND DISTRICT POULTRY-KEEPERS' ASSOCIATION.

LAYING TEST—7th MONTHLY REPORT.

The 11th of May closed the Seventh Monthly Period of the Test, held at the Roberttown Poultry Farm. The health of the flock is good. There has been one death through ovary trouble—No. 23, White Leghorn.

LIGHT SECTION (Single bird).

Pos.	Owner and Breed.	Score.
1.	Ledgard and Brown (W.L.)	139
2.	Sykes Bros. (W.L.)	98
3.	T. Ashcroft (W.L.)	95
4.	J. A. Thachrah (W.L.)	89
5.	J. W. Brown (W.L.)	88
6.	A. Blackburn (W.L.)	83
7.	P. Saxton (W.L.)	83

No Ribbon awarded in Single Bird Light Section, the following birds tie: Nos. 12, 16, 27, 73.

HEAVY SECTION (Single bird).

Pos.	Owner and Breed.	Score.
1.	C. Whiteley (W.W.)	107
2.	J. Raistrick (R.I.R.)	98*
3.	A. Blackburn (W.W.)	97
4.	G. Brook (R.I.R.)	95
5.	G. Martin (R.I.R.)	88
6.	T. E. Burnett (L.S.)	87

LIGHT SECTION (3 birds).

Pos.	Owner and Breed.	Score.
1.	N. Firth (W.L.)	275
2.	Ledgard and Brown (B.L.)	252*
3.	C. Killingbeck (W.L.)	207

HEAVY SECTION (3 birds).

Pos.	Owner and Breed.	Score.
1.	W. Horsley (B.R.)	237
2.	T. E. Burnett (L.S.)	224
3.	P. Furness (R.I.R.)	174

* Winners of Monthly Ribbons.

The following birds have been broody: Nos. 39, 40, 42.

P. FURNESS, Hon. Sec.

MARKET REPORT.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, MAY 16th, 1924.

GRAIN AND FEEDING STUFFS.—Nearly all kinds of feeding stuffs were distinctly cheaper in April than in March, the general level of prices being 46 per cent. above that of the corresponding month in 1911-1913, as compared with 54 per cent. in February and March and 47 per cent. in January. Prices remain, however, somewhat higher than at this time last year, when they were on the average 39 per cent. above pre-war.

English wheat is now very scarce at the markets, and although there is no very keen demand buyers are compelled to pay higher rates. The average price this week, 11s. 3d. per cwt., is 8d. higher than a few weeks ago, and is the highest point reached this season. The shortage of British barley and oats has stimulated interest in imported sorts, and prices show a distinctly dearer tendency. Spot supplies of maize are small at Liverpool and prices are decidedly higher, but in London an easier tendency is reported for Argentine, as shipments of the new crop are due to arrive shortly. Middlings are a steady trade at late rates, but bran is quiet and easier. Maize meal is dearer. Cotton cakes are in request and prices have advanced, while coconut cakes are decidedly dearer.

MILLERS' OFFALS.—Bran (British): Bristol, £8 5s.; Hull, £7 12s.; Liverpool, £7 10s.; London, £7 17s. Broad Bran: Hull, £9 2s.; London, £8 12s. Middlings: Fine (Imported): London, £9 10s.; Coarse (British): Bristol, £9 5s.; Hull, £9; Liverpool, £8 5s.; London, £8 17s. Pollards (Imported): Bristol, £7 15s.; Hull, £7 5s.; Liverpool, £6 17s. Rice Bran: Bristol, £7 5s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £10 10s.; Hull, £10; London, £10 10s. Maize Meal: Bristol, £12; Hull, £11 1s.; Liverpool, £10 15s.; London, £11 10s. Maize Germ Meal: Bristol, £11; Hull, £10; London, £9 5s. Maize Gluten Feed: Bristol, £11 5s.; London, £9 7s.

EGGS AND DEAD POULTRY.

Week-end Prices—Eggs (per 120): British, 14s. 3d., 13s. 6d.; Irish, 13s. 6d., 13s.; Danish, 15s. 3d., 14s. 6d.; Dutch, 16s., 14s. 6d.; Italian, 13s. 9d., 13s. 3d.; Styrian, 13s. 3d., 13s.; Belgian, 13s. 9d., 13s. 3d.; Chinese, 11s. 6d., 10s. 6d.; Egyptian, 9s. 6d., 9s. 3d.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 10d., 2s. 6d.; Irish, 2s. 5d., 2s.; Others, 2s. 5d., 2s. Ducks, 2s. 4d., 2s.

EGGS.

Per Doz.—Ashford: First, 1s. 3½d.; Second, 1s. 2d. Birmingham: First, 1s. 3d.; Second, 1s. 2½d. Bridgwater: First, 1s. 2d.; Second, 1s. 0d. Carlisle: First, 1s. 4d. Chelmsford: First, 1s. 3d.; Second, 1s .1½d. Denbigh: First, 1s. 1d.; Second, 1s. 0d. Derby: First, 1s. 3½d. Dorchester: First, 1s. 2½d. Exeter: First, 1s. 4d. Hereford: First, 1s. 1d. Hull: First, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 3d. King's Lynn: First ,1s. 3d.; Second, 1s. 1d. Lincoln: First, 1s. 3d. Llandilo: First, 1s. 1d.; Second, 1s. 0d. Newport (Mon.): First, 1s. 3d.; Second, 1s. 2d. Norwich: First, 1s. 3d. Oswestry: First, 1s. 3d.; Second, 1s. 2d. Penzance: First, 1s. 3d.; Second, 1s. 2d. Salisbury: First, 1s. 3d.; Second, 1s. 2½d. Shrewsbury: First, 1s. 2d.; Second, 1s. 1d. Skipton: First, 1s. 4d. Truro: First, 1s. 2d. York: First, 1s. 4d.; Second, 1s. 3d.

FOWLS.

Per lb.—Birmingham: First, 1s. 9d.; Second, 10d. Bridgwater: First, 1s. 6d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 10d. Hereford: First, 1s. 10d. Ipswich: First, 1s. 10d.; Second, 1s. 8d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 2s. 4d.; Second, 2s. 2d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Shrewsbury: First, 1s. 6d.; Second, 1s. 3d. Truro: First, 1s. 4d. York: First, *6s. 0d.; Second, *4s. 9d.

DUCKS.

Per lb.—Bridgwater: First, 1s. 4d. Exeter: First, 1s. 9d. Llandilo: First, 2s. 6d.

* Per Head.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, May 28th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

THE BREEDS.

"Breeds may come, and Breeds may go, but the Barred Rock goes on for ever." So breeders of this particular variety are fond of saying, and there is, perhaps, some truth in it, for the breed has many followers, although 45 years have passed since its first introduction into this country. But why do breeds come and go? Why have some such a hold on popular favour, while others, in spite of excellent economic qualities and persistent booming, never succeed in establishing themselves? And why have others lost their hold on the public, when everything seemed to indicate a big future for them? It is not always easy to answer these questions, but it is at least of interest to consider possible reasons.

Cochins and Brahmas, one may safely say, gave way to more economic breeds, but what caused the Dorking to lose ground so steadily has puzzled many breeders who know its excellent qualities. There was a whisper that it was delicate, unsuited to exposed positions and clay soils. This, however, is not sufficient explanation, and one feels a sentimental regret that this breed, which was known here when England was called Britain, should now have such few followers.

Certain breeds, we know, owe their decline entirely, or almost entirely, to the fancier's penchant to breeding some particular character to extremes, and so sacrificing others of more economic importance. Amongst these we may class the Black, White and Buff Orpington, the Houdan, Black Spanish, and the Minorca, which is just beginning to regain its popularity. All three varieties of Orpington have splendid economic qualities, but they were all sacrificed to the fads of the fancier, which, when carried to extremes, resulted not only in the decline of popularity of a breed amongst utility breeders, but even amongst the fanciers themselves. If we want evidence of that we need only think of the Orpington classes at the shows ten years ago and now.

The White Leghorn had a narrow escape. Many of our readers will remember the excitement that pervaded the land, when some years ago fanciers introduced Malay blood, and threatened the existence of the breed as a utility fowl. Public opinion, however, saved the breed, its expression was too strong, and the judges bowed to it. Even now the utility breeders are truer to type than the fancier. An excellent example of this is to be found in "British Poultry," where one can compare Mr. Tom Barron's famous hen, Baroness IV., with an exhibition hen.

But we must be just to the fancier, and as we have pointed out what we believe from the point of view of the utility breeder to be his errors, it is only due to him to show what we owe him. The Sussex, with all its splendid utility qualities, would have remained a "Barndoor" fowl, but for the fancier, and would have probably been unknown outside the county of its origin. To the fancier we owe the distinguishing breed characteristics, and, thanks to the wisdom of the Sussex Club, he has never bred it to extremes. It is only fair to say that on the whole he has done more to preserve the true utility qualities of the breed than the professed utility breeder.

Again with the Rhode Island Red, it owes its position as one of the most popular breeds, in the main, to the fancier, with all its splendid utility qualities; but for his work it would never have really established itself in this country. Those of us who remember its first introduction, and compare the birds shown in those early days with the birds benched now, will agree that the improvement which has been effected is a triumph of the breeder's skill. One wonders why the rose-combed variety never "caught on." It possessed all the attributes of the single comb, and there were those who predicted that it would be the more popular of the two; but it was not to be, it is just a case of popular fancy.

There have been breeds which have been a long time before the public, but which have never attained real popularity. The Silver Campine is one example. In its native country they think highly of it. Here it has comparatively few followers, and is making no progress. There is some reason to believe that out-crosses with the Hamburgh did harm, and then it is only moderately hardy. It is hardly true to say that the Buff Plymouth Rock has not attained real popularity. It has, and will probably be a great favourite than ever in the next few years. Nevertheless, with all its sterling qualities, it has been rather slower in attaining its position than many of us thought it would be. The White variety, which has such a large following in America, is hardly known here for its utility qualities, and is making no headway, although it is a first-class layer, its abilities in this respect having been proved many times in laying trials in the States, and it is a very handsome bird.

Bresse have been a long time before the public, and are now really coming into their own, but when one remembers that it is a wonderful layer, that the French think it unequalled as a table fowl, and they are good judges, that it is quick to mature, and, quoting Miss Theobald in "British Poultry," "It has the double quality of being a good layer and also an excellent, indeed, the best table bird, doing well on heavy clay soil." It is a little surprising that it has hung fire so long, perhaps it is because no effort has been made to boom it.

It is 30 years since the first Faverolles came over. They are good layers, and excellent table birds. They have made little or no progress. The same may be said of the Orloff, which was first seen here 25 years ago. The weird appearance of these two breeds does not appeal to many people, and it is hard to see the beauty in them which their admirers proclaim when extolling the virtues of the breed. There is a possibility that had the Faverolle been bred for a clean leg, it would have had more followers, but breeders clung to the feathers, and utility breeders do not, as a rule, like feathered legs.

Anconas were introduced in 1880. They have a large following. Perhaps it is owing to the fact that utility breeders prefer a self-coloured bird, that it is not larger, also a reputation they have for being wild. The Andalusian, despite its excellent qualities, has never been a favourite, because, like all blue breeds, it will not breed true to colour; 30 or 40 per cent. of the chicks are sure to come either black or white.

There are doubtless many other reasons why certain breeds, in spite of excellent qualities, have failed either to catch or hold popular fancy. We have only suggested a few of them.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

LEG WEAKNESS AND INCUBATION.

I have received the following letter from Mr. F. C. Bernard:—

Dear Sir,—As you may be aware, I only became a member of the S.P.B.A. lately. Since then I have received the Year Book and the valuable journal, "Eggs." I read carefully everything that I came across re Leg-Weakness, as my chicks were suffering considerably from this at the time. It may be of interest to you and the readers of "Eggs" to note that since I tried your formula, given in the Year Book, I have not had a case of it, although all other conditions are the same. I refer to the formula: 60 parts bone ash with 20 parts salt and 20 parts crushed oyster shell, or lime grit dust, and added at the rate of 3ozs. to every 10lbs. of mash.

Could you, or any of your readers, explain the following to me? A friend had 110 eggs in a Hearson incubator. In the middle of the hatch the lamp sooted up one night and went out. It was out most of the night, and after some trouble he put it right in the morning. He also gave up hope for the eggs, yet when they hatched out he got 93 strong chicks out of it.

I, myself, went one night, in the middle of the hatch, about 11 p.m., to look at my incubators, and found one Glevum was too hot, so I opened the front, and left it open while I looked at the others. I then went away, and forgot to close it. It remained open till 8 a.m. the next day. The result was I had the best hatch I have had this season. It seems curious.

Yours truly,
F. C. BERNARD.

As another example of what will happen with incubators the following may be of interest. It is taken from a letter received from Mr. R. H. Robson:—

"An experience I have had with a Hebditch Incubator may interest you. I intended to run it according to your advice of 105 the first week, 104 the second, and 103 the third, but the regulator got jammed, with the result that the first night it ran at 110, second night at 109, rest of time normal. Result: 188 eggs put in, nine clears, eight dead-in-shell, 171 hatched, and the eggs were up to nine days old."

Of course, an explanation is almost impossible. We must recognise that the eggs hatched in spite of them, not because of what happened, or one might be attempted to try it as an experiment.

I once knew a man who accidentally spilt a lot of paraffin over the eggs in his incubator. An extraordinary good hatch resulted. Now we have to look at it from different points of view. He thought it was because of the paraffin that he had such good luck, and wrote a letter to the Press expatiating on the virtues of paraffin as an aid to incubation. It possibly never occurred to him that the good hatch took place in spite of the oil, not because of it; that is to say that the germs were not badly affected by it.

Now, in Mr. Robson's case, the first night the temperature ran up to 110, and the second 109, which shows what a high temperature a germ will stand during the first stage of incubation. Had that temperature occurred at a week old, there would have been a different tale told.

With regard to what Mr. Bernard has to say on leg-weakness. The inference is that the ration used previous to this was deficient in lime phosphates, otherwise this addition would not have prevented leg-weakness, which we know is often only symptomatic.

BROODERS AND LEG-WEAKNESS.

In reference to Mr. Lloyd Bigland's letter, which appeared in our issue of April 23rd, describing his method of rearing to prevent leg-weakness, I have received the following letter from Mrs. Howard, who writes:—

> "I would like to say my experience re "Millers'" brooders is not like that of Mr. E. L. Bigland. Last season I reared 2,000 chicks, and getting well on that way this year, single-handed, and all in "Millers'" brooders, and not one sign of leg-weakness up to the present. I have been using these brooders for five years, and have had no leg-weakness. I always put earth in the nursery, and let them run out just when they will, but always turn the brooder with its back to the wind."

THE WHITE DIARRHOEA TEST.

In the March 26th issue we published a report of the White Diarrhoea Test, as carried out in the State of Massachussets. I regret to say that, owing to a mistake for which I must bear the responsibility, this was stated to have been taken from "The American Poultry Advocate." It should have been from "The American Poultry Journal." My apologies are due to the Editor of the latter.

WING BANDS FOR CHICKS.

Frequent enquiries are received as to the method of marking chicks by means of wing bands.

This should be done after they are three weeks old. The rings can be removed from the legs, and it will not be necessary to replace them. There is often unintentional cruelty when leg bands become too small for the growing legs. When a wing band is used they need no further attention, as they become permanent marks.

When the wing of the chick is opened, a flap of skin will be noticed which extends from the shoulder joint across to the third joint of the wing, counting the shoulder joint as the first joint. By holding this skin up to the light, a place can be selected about a quarter of an inch from the edge of the skin, where there are no large blood vessels. At this point run the small blade of the penknife through the wing; little bleeding will result. Insert the band through the slit in the skin and bring the ends together, forming the band into a circle.

Care must be taken that, in inserting the band into the wing it is not pressed together, so as to squeeze or pinch the skin of the wing. If this is done, the circulation will be cut off, a sore will form, and the band may slough out and be lost. These bands when put in properly will remain in the wing of a fowl through mature life, and will always serve as a permanent identification mark.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

S. B. H. (Oldham). The sample of middlings is of fair quality. I should like to see something better. The germ meal appears to be nothing better than coarsely-ground maize meal, and it is not at all a good sample. The bran is not at all a good sample; you must get something better for the chicks. S.G.O., No. 2, is not "Sussex" ground, and is not worth the money. No, sample at 15s. 6d. is far better value, but it is very coarsely-ground, and is not "Sussex" ground; it contains too much husk, and there would be some danger of the gizzard being blocked if you used it. In S.G.O. it is the custom of millers to add 8 per cent. of barley when grinding; this is not for the purpose of adulteration, but the hardness of the barley enables the oats to be ground more finely. The percentage is so little that it would make no difference to the food value.

M. T. B. (Herne Bay). You could not do better than use the cellar for incubating, and it is all the better for being slightly damp. Yes, the "Handling and Observation" Charts can be obtained from this office at 1s. 4½d., post free, or from any of Smith's Bookstalls at 1s. 3d.

E. M. (Devonshire). Yes, we get a very large number of letters of appreciation, but I am very pleased to get yours, and to learn that by scrapping the old method of feeding and using that as advised in these columns you have 350 "Topping" chicks three months old, and have never had such strong ones, and that we have saved you time, labour and money. (1) No, it would not be advisable to make such a mating as you suggest, it is too close. It would be far wiser to get a Barron cockerel. You see you will be mating half-brother and half-sister. (2) I am afraid you can do nothing with the W. Leghorn pullet, which has been lame since February. (3) If you want to sell your cockerels for table, you will do better to place them on a wet mash now, as it is much easier to fatten on a wet mash than dry. As you have plenty of skim milk available, your task should be an easy one. Shut the birds up in a quiet house, a little on the dark side, and give them the following mash:—Three parts middlings, one each barley meal, oatmeal (as you cannot get S.G. oats), and maize meal. Mix this with your skim milk, and give them as much as they will eat twice daily in twenty minutes. As a last feed give them boiled wheat or rice. Do not add the patent meat meal. (4) It is quite possible that the fish meal, in conjunction with the milk, was responsible for the loss of the chicks.

D. L. (Dorset). The mash you ask for is: 1 lb. bran, 1 lb. alfalfa meal, 4 lbs. middlings, 1 lb. each Sussex ground oats, maize and fish meal. You can use biscuit meal in the place of the ground oats by way of a change, and meat meal for fish meal. If you have plenty of fresh green food replace the alfalfa with another part bran; the bran should not be scalded, but used to dry off the other ingredients.

A. K. (Bristol). The blood in the droppings is due to the excessive quantity of fibre you are feeding in the mash. This is causing acute digestive trouble, and it is a wonder that your birds are laying at all. Omit the clover meal from the mash, it is a very poor sample; reduce the bran to two parts, and replace one part of the ground oats with one part maize meal. It is not bad luck, my dear sir, but bad management.

D. L. (Mansfield). From your description I think your pullet is suffering from "Cloacitis," which is an infectious venereal disease; treatment is tedious, and unless the bird is a very valuable one I should not attempt it. You would be wise to remove her from the flock, and if a male bird has been running with them remove him too. You should cleanse the feathers and the exterior of the vent, and apply 2 per cent. carbolic ointment and inject a 2 per cent. solution of Izal twice daily.

A. S. H. (Sudbury). The sample you send is nothing more than fine bran; it could not by any stretch of imagination be called middlings, and at 9s. per cwt. it is very dear. It is most important that when middlings are used in the mash they should be a fine grade—"floury," in fact. It seems very difficult for poultry-keepers to get hold of a very good sample of middlings at the present time, and it would be a great benefit if they were standardised. I am glad to have your appreciation of the help you get through the columns of "Eggs."

E. B. S. (Devon). Your mash is far too expensive, and no biscuit meal is worth 32s. per cwt. Replace it with maize meal in the same proportion, or one of the cooked cereals; reduce the Sussex ground oats to one part (you are paying 5s. per cwt. too much for them) and add another part middlings. The sample you send is a very good one, but you must learn to buy with more discretion if you are so anxious to make your poultry pay. Yes, the cellar would make a very good incubator house, it does not in the least matter that it is a trifle damp; it is far more suitable than the stable. The subscription to the S.P.B.A. is a minimum of 5s., this entitles you to a copy of the Register free, and free advice by post. The new financial year begins on September 1st.

H. W. (Bexley Heath). As your birds are on free range you could economise by cutting the clover out of your mash, that will be unnecessary, and in the summer months could reduce the fish meal by one-half. You could not do more than this, but that is a great saving, as both fish and clover are expensive items.

S. A. C. (Leighton Buzzard). In No. 1 house, 9 ft. by 8 ft., you could keep 18 to 20 White Leghorns, and in No. 2, 15 ft. by 9½ ft., 36. You will not have to alter the formula in any way now you are keeping them intensively; the chief points on this system are to keep a good supply of dry scratching litter. If your litter becomes damp shift it at once, as this is one of the most fruitful sources of roup. If there is a shortage of litter, the birds may become overfat for want of exercise, or you are likely to get outbreaks of feather plucking or egg eating. Feed one handful of finely kibbled grain between every four birds in the litter at 8 a.m., and a large handful between every two about half an hour before they perch. You must be sure to have a plentiful supply of fresh green food.

L. G. (Milnthorpe). Only members of the Association are answered by post, non-members through the columns of "Eggs." If you dissect the chick you can tell the sex immediately it is hatched. It does not change its sex after hatching.

C. R. G. (Tenterden). The sample of fish meal you send is a perfectly good one, and if you could get a guaranteed analysis that the salt content does not exceed 4 per cent., it would be worth £18 to £19 per ton.

New Reader (Stockport). No, it is not true to say that hens which have big records never breed good pullets; that is wholly incorrect. Possibly someone has told you that birds with high records rarely breed many pullets as good as themselves. That would be nearer the truth, and that is hardly surprising, is it? (2) The amount of moisture in a food is determined by drying a finely ground sample at a temperature of 212 degrees Fahr. This is continued until the weight becomes stable. (3) The occasional appearance of white progeny from the Light Sussex is due to the failure to secrete pigment in the normal manner. It would be quite possible to establish a strain of White Sussex from these. Your experience is not unique by any means; I have had several cases reported, and once had a cockerel and three pullets sent me. They were very handsome birds.

Intensive (Sarisbury). In answer to your questions re the intensive system, the most suitable breeds are the White or Black Leghorn. Following them the White or Black Bresse. Of the heavy breeds I should prefer the White Wyandotte; neither Sussex nor Australorps would be suitable. You should allow four square feet of floor space per bird; for 50 or 60 birds a house 16 x 14 would be best. The litter is of the utmost importance. Straw is the best, it must be kept dry, otherwise there is likely to be an outbreak of disease, and if you allow it to become short, then you are likely to get an outbreak of feather plucking, egg eating, or some other vice, besides the risk of the birds becoming overfat. The nest boxes should be at least 18 inches above the floor, and the front not exposed to the light, or you are likely to get an outbreak of egg eating. The mash should be fairly bulky, dry and always before the birds; grain should always be fed in the litter, and you must supply green food. Do not be afraid to use the whitewash brush. A light bright house is conducive to better health and contentment.

A. L. (Hawkinge). Black Bresse chicks generally hatch with light or yellow coloured legs. These soon, however, turn darker. A cross of a Bresse male with Light Sussex hens gives sex-linked inheritance, but the chicks are hardly recognisable at hatching. Later the pullets have dark bluish legs, and the cockerels white.

J. T. (Clayton-le-Moors). Yes, you can hatch turkey eggs in an incubator. The heat required would be the same as that with hen eggs, and I should not cool daily. The eggs take 28 days to hatch. I should not treat them any differently than you would hen eggs.

I. L. S. (Exeter). In certain strains of Light Sussex there is reason to believe that the Light Brahma was used in the early days to improve the hackle. The fact that your birds have thrown yellow legs must, I think, be due to this—it is a case of reversion. I am afraid there is nothing you can do except take care not to breed from these specimens.

M. C. G. (Chudleigh). No, you must not mate these cockerels, February and March hatched, up in July for the purpose of getting fertile eggs for a trial run with your incubator, because you would not get many fertile eggs, and the few you did would have weak germs, and probably would not hatch; while at the same time you would ruin the cockerels for next breeding season. If the incubator is a good make, there is hardly any necessity for a trial run. Test the capsule and thermometer. There is no need to put any eggs in for this purpose. If you find the capsule is all right, and have your thermometer tested, then you have only to follow the maker's instructions, which are fairly simple. Your informant was wrong when he told you it was necessary to fill the incubator with eggs. A dozen will hatch as well as a hundred, so if you would like to give it a trial run with a dozen, it would be easy to do so. If you will let me know the make of the incubator I will try and advise you how to run it. It is important that it should be in a room where there is not too great a variation of temperature.

F. E. B. (Tonbridge). I am very pleased to hear you have had so much better results by following our advice on incubation. "Liver" trouble is rather indefinite, as there are many forms of it. Would it not be wise to send one of the birds to Capt. Leeney? You will find full particulars at the head of this column. There must be something radically wrong for you to lose so many birds in this way.

E. J. S. (York). Your pullets have not done at all well, and I do not think they are worth keeping another season. They are not likely to come into lay again. In young chicks the symptoms of coccidiosis are weakness, ruffled plumage, droopy wings, bunched appearance, and a peculiar sleepy look. There is loss of appetite, diarrhoea, the droppings are semi-fluid and whitish in colour, but may be of brownish tinge. In acute cases the droppings of young chicks are stained with blood. Chicks that recover from this disease are stunted and worthless. It is very infectious. I would not care to rely on one rooster to thirty hens, to give good fertility, but with a vigorous bird on free range you will often get good results with such a number. There are various things to take into consideration—the vigour of the stock, and the range, and, to some extent, the breed. An Orpington would not be as active as a Leghorn, nor in extremely cold weather could one expect the Leghorn to prove very fertile. Generally speaking, with fair range, fifteen is a good mating for one cockerel; with a small range, not more than ten.

POST-MORTEMS.

R. I. C., Derry. The everted rectum was caused by striving to lay a shell-less egg, and by the presence of a tapeworm, which no doubt kept up the straining. It was extruding half an inch, and was of the kind that pass an intermediate life in rabbits. Viscera thrown out on the mixen afford opportunities for fowls to get the final form as a tapeworm.

E. L. F. Acute mesenteric disease, blocking all the avenues from the digested food in the alimentary canal to the circulation. No, I do not know what causes this form. In others it is tuberculosis, when there is other evidence, particularly in the spleen.

Y. Z. X. These were all pneumonia cases. B.W.D. is a disease of the first eight days.

H. M. Internal haemorrhage from rupture of the oviduct was the cause in this bird. She had a splendid clutch.

Miss V. Pneumonia was the disease from which the chick had suffered. The yolk sac was dropsical, and the belly greatly distended.

"Marguerite." Infectious pneumonia accounts for your losses where the same system answered so well before.

S. E. O. Both chicks had the yolk sac broken and abdomen flooded. One had typical infectious pneumonia, and the other had the accidental or sporadic form. Not B.W.D.

Miss A. L. W. This is one of the troubles we cannot guard against. Four very fully developed yolks prevented one another from entering the duct, and their necks, or (if you will) umbilical cords, had become twisted, and the circulation cut off. A condition of stasis followed.

"K.," Hants. There were no signs of infectious disease in either of these chicks, but there was evidence of indigestion. In both the tough membrane of the gizzard peeled without effort. In one bird there were clots of blood in the windpipe, but no gape worms were found. They would improve if given an ounce of compound concentrated infusion of gentian (1-7) in each gallon of drinking water, more and larger grit, and some dry corn as part of the ration.

H. H. H. The Black Leghorn cockerel had amyloid degeneration of the liver, and it weighed 12 ounces. The spleen was the size of a turkey egg. These conditions point to some error in feeding. So far as I am able to judge, there is no more frequent cause than excess of fish meal, or low grades with two much oil.

D. S. The R.I.R. hen was full of blood from a ruptured and degenerate liver. All the ova and size were converted into dense triangular masses, or the shape of half a brazil nut, but larger. No treatment could avail. A remedy is to be looked for in fasting and morning salines. She could not have been laying for some considerable time.

"Anglesey." The breast bone was badly injured, and there was haemorrhage into the lung.

T. B., Banbridge. B.W.D. in two, and pneumonia in others.

S. F. H. Both chicks had pneumonia. One had a twisted gut also.

F. P. The old hen had twisted bowel, and strangulation of it. She had two very large ovarian cysts, but these did not interfere with her health.

A. S. The R.I.R. cockerel had pulmonary apoplexy. His heart was too big and powerful for his vessels. The variations in this breed are greater than in any other. Query: Has it any relation to colour, and why is it so difficult to get or keep the correct colouration? This is one of the posers I have up my sleeve for Major Saunders, who was formerly a professor at the Toronto University, and has deeply studied avine pathology. It was from this learned body we derived much of our information on coccidiosis; more particularly the treatment by acids.

H. LEENEY.

DISEASES OF POULTRY.

By Capt. LEENEY, M.R.C.V., M.S.A., A.P.S.

COCCIDIOSIS.

For the past thirty years an ever-increasing number of victims of a disease scientifically known by the above title, has made it more and more difficult for the poultry farmer to run his business at a profit. It was fairly well-known in America before it reached (or was recognised) in this country. So far as is known it was then confined to turkeys, and was known as "black-head," because in adult birds severely stricken, the comb and head ornaments quickly passed from red to purple, and approaching to black. It was an unfortunate name to acquire, because in subsequent years this prominent symptom was usually absent. "What's is a name?" A very great deal when it is a misleading one.

Diseases of man and beast undergo modifications as time passes, as everyone of mature years will agree when influenza is mentioned. At one time the attack is chiefly endured by the respiratory system, at another by the digestive, and again cerebral or brain and spinal troubles follow on infection with the seasonal or prevalent form of influenza. So it has been with coccidiosis of birds. Originally turkeys were infected in the caeca, or so-called blind guts, and secondarily (by themselves) in the liver. The caeca were found distended with matter which resembled decaying cheese, and was the result of a slow inflammatory process, which did not greatly interfere with the bird's general health, as the caeca are comparable to back-waters, in which the faecal matter passes in and out by the same slow tide, and independently of the main stream. When the secondary infection of the liver followed, the subject would produce an excess of degraded biliary matter, and a green diarrhoea would be present, with staining of the feathers around the vent. This symptom is not by itself diagnostic, but should be regarded with great suspicion. Any other source of excessive stimulation of the liver such as parasitism will lead to green evacuations, as will an excess of fish meal of inferior quality. The diseased liver was found after death to be pitted with round ulcers with golden yellow borders and, perhaps, similar bright spots in the centre. It was unmistakable by anyone who had once seen it.

Fowls were for some time apparently insusceptible, although associated with turkeys affected. After a time this relative immunity was lost. Adults are still more resistant than turkeys, but each year sees more chickens of all ages affected.

The most serious aspect of the subject is, to my mind, the question of heredity or transmission from the ovarium of the recovered pullets, which has been definitely proved. Many chicks of a week old or less examined by me, are found to have caeca filled with the morbid material in so advanced a stage that it is simply impossible that they could have been infected since hatched.

Professor Saunders, formerly of the Toronto University, who was here to-day, endorses my view of transmission by the ovary.

In chicks up to the end of last season, only the primary lesions in the caeca were found, but during this spring quite a number of chickens a month or six weeks of age have been examined with the characteristic ulcers in the liver.

Again, as indicating the vagaries of the malady, chicks are coming daily with the caeca in an acute state of inflammation, not the sub-acute or chronic, which produces the rotten cheese substance previously mentioned. In these acute cases the caeca or blind guts are distended with purple blood mixed with mucus, and might be mistaken for cholera cases, which are unfortunately coming in almost daily. The two diseases are, however, easily differentiated, as the caeca do not show the lesions of cholera, and the other and larger bowels are filled with a pink mixture of blood and intestinal mucus and juices (succus entericus). The colour is quite distinct and characteristic.

Readers may think themselves unable to distinguish between these maladies, although they would certainly do so if shown cases side by side, and it is very desirable that they should know, and immediately isolate while waiting for an expert's examination.

Another change in the invasion of coccidosis is noted this year, at least by me (others may have seen it but I do not find it recorded). The heart is largely occupied by white swellings which prove to be coccidial on microscopic examination. These swellings take the place of the muscle or heart substance, and enfeeble it so that the normal contractions are not possible. Similar white areas or pale primrose yellow are found in the liver and more muscular portion of the gizzard, which cannot exert its normally great force in grinding with the grit provided. The latter swellings are very soft, and the viscus feels flabby.

It will be seen then that coccidosis in various forms is becoming an increasing menace to the poultry industry, and alas! a cause of friction between buyers and sellers. A fine hatch of chicks is sold as day-olds, and on arrival die off without any symptoms of the dreaded B.W.D. The purchaser thinks he has been let down by diseased birds, and is reluctant to accept the loss. The seller is quite confident that the chicks left his premises in perfect health, and so the materials are provided for a quarrel.

Is it what lawyers would call "a fair trade risk?"

As to treatment. Seeing the universality of the disease, it would seem that treatment offers the only present hope, but against that is set the probability of recovered pullets passing it on to another generation. That catechu in some way kills or inhibits the action of the coccidia seems to be proved by experience, and for the acute form may be pushed, by doubling the dose usually prescribed of fifteen grains to the gallon of drinking water, allowing no other.

POULTRY AND BEES.

By E. D. MADOC.

Bees "fit in" with poultry remarkably well. The bees take up no valuable buildings required by the hens. The hives may be stood almost anywhere, and the hens may be allowed on the same plot of land without fear of damage to either poultry or bees.

The busy time with the bees is during the summer, when there is least work with poultry; during the autumn and winter, when special attention is needed to ensure plenty of high-priced eggs, and again in early spring when hatching and rearing are in full swing, the bees require little or no attention.

As to the pros and cons of poultry-keeping, I need say nothing. My readers will have gone into the subject very thoroughly already for themselves; but with bees the case is different. Perhaps few have thought of bee-keeping seriously as an additional source of income.

In relation to the size of the income, the capital necessary for bees is perhaps as small or smaller than with any other agricultural pursuit. The same, however, cannot be said of a good working knowledge of bees. It is true that the majority of bee-keepers know little or nothing of their subject, but the result is that their bees are not much more profitable than are the hens kept hanging round the farmyard by the average farmer.

If it pays to know all about poultry, it pays still more to know as much as possible about bees, if they are to be a really profitable concern. This knowledge, which is so essential, is unfortunately rather difficult to obtain, because there are so few bee-keepers in England who keep bees on a large scale, and really know much about them, and almost all the English books on bees treat the subject from the "hobbyist's" point of view.

There is a growing tendency among the more progressive English bee-keepers to follow the methods, and use the appliances, of, the large commercial bee-keepers of America, where the industry is in a flourishing state, and is carried out on a scale hitherto unthought of in this country. This tendency is in the right direction, and budding bee-keepers who intend to take up bees seriously will do well to study the conditions of the industry, as they exist in the United States and Canada to-day. There are a number of good books, and two or three first-class journals published in America devoted entirely to the interests of the honey producer, which should be obtained and read carefully.

"Book knowledge" in bee-keeping, as in any other business, will not replace practical experience, but the two are complementary, and both are essential.

Perhaps the main drawback to bee-farming lies in the fact that the apiarist is largely at the mercy of the weather, as far as his honey crop is concerned. He can partially mitigate its effects in many directions, but the yield of honey is always largely affected by the suitability, or otherwise, of the season. In this respect bee-keeping much resembles fruit-growing, and the average returns must be considered rather than the return for any particular year. Roughly speaking, in a series of ten years, one will be very good, one very bad, with the rest more or less average years.

Lately Acarine or Isle of Wight disease has been a serious menace to the industry, but its cause has been discovered recently, and experiments are in progress which show promise of giving us a cure for this disease. The only useful knowledge we have at present is that certain races of bees, notably the Italian, and particularly certain strains of this race, are much more resistant to the disease than others. Apart from Acarine disease, European and American Foul Brood are the only diseases of any importance, and both these are fairly easily curable.

THE CARE OF YOUNG PULLETS.

It is essential that the young pullets and cockerels should be separated as soon as the sexes can be distinguished, the chief reason for this being that the pullet needs a different bill of fare to her brother. This, of course, is a self-evident fact, as one cannot expect the pullets to take steady strides towards maturity on a diet that is planned to fatten up the cockerels for the table.

Having removed the pullets, grade them carefully. It is not a good plan to have a flock of birds of various ages and sizes running together, as the smaller and weaker ones do not get their fair share of food, and so do not thrive. Grade into small flocks, working for uniformity of size, if you wish to get the best results.

FEEDING.

Pullets should never be given forcing foods, as they will only bring them on to lay too soon, with the result that the bird may lay an under-sized or mis-shapen egg, and permanent injury will result, as the bird will be no good for breeding purposes. Let your watchword be "QUALITY." Do not be put off with second-grade foods. Insist on having the best, even if you do have to pay a little more for it, the best is the cheapest in the long run.

If the birds are fed on the dry mash system, admirable results have been obtained by using the following formula when the birds are 10 weeks old:—

1lb. Sussex Ground Oats.
1lb. Maize Germ Meal.
½lb. Clover or Alfalfa Meal.
4lb. Middlings.
3lb. Broad Bran, and
1lb. Fish or Meat Meal.

The addition of a little granulated charcoal to this mash is advisable as a preventive or cure of bowel trouble.

Should a wet mash be desired, give scalded biscuit meal dried off with the above mash.

The grain feed should consist of two parts wheat, one part short, fat Scotch oats, and one part kibbled maize.

Give grit and fresh green stuff regularly, and make sure that your birds have an adequate supply of fresh drinking water. The latter should not stand in the sun.

One last suggestion I have to offer. Always be very gentle with your birds, teach them to know you both by sight and by the sound of your voice, and never miss an opportunity of petting them. This is not a waste of time, for the happier your birds are, the better will they thrive. The layer of a large number of good sized eggs, and the breeder of sturdy chickens is what we should aim for, and I firmly believe that the happiness of the bird is almost as important a factor towards this end as sound nutrition and sanitary environment.

H. B.

KEIGHLEY BRANCH.

The seventh month of Laying Test organised by the Keighley and District Branch of the S.P.B.A., held at Minorca Farm, Denholme, Bradford, concluded on May 14th. Results have again been excellent, although there has been a good many cases of broodiness. Three birds have laid 28 eggs, and nine have laid 27 in the 28 days.

LIGHT BREEDS.

Position.	Owner and Breed.	Score value.
1.	W. Bancroft (Ex.L.)	145
2.	S. Preston (W.L.)	138
3.	H. Kershaw (W.L.)	137
4.	S. Lawton (W.L.)	134
5.	S. Lawton (W.L.)	129
	W. Owen (W.L.)	129
6.	Ed. Smith (Ex.L.)	123
7.	H. Buckley (Blk.L.)	118
	Mrs. H. Wilson (W.L.)	118
8.	Mrs. J. R. Thompson (W.L.)	114
	H. Calvert (Br.L.)	114
9.	F. Snowden (W.L.)	112
10.	H. Dixon (W.L.)	111

Other scores are: No. 36 (110), No. 15 (110), No. 18 (109), No. 39 (109), No. 9 (107), No. 60 (107), No. 44 (105), No. 17 (104), No. 19 (103), No. 48 (103), No. 34 (103), No. 31 (103), No. 66 (92), No. 53 (89), No. 38 (74), No. 37 (71), No. 59 (71), No. 14 (55).

HEAVY BREEDS.

Position.	Owner and Breed.	Score value.
1.	H. Downsbrough (W.W.)	140
2.	H. Rawlinson (W.W.)	136
3.	H. Nelson (W.W.)	135
4.	H. Kershaw (W.W.)	134
5.	H. Dixon (W.W.)	130
6.	S. Lawton (W.W.)	126
	Mrs. G. Barker (W.W.)	126
7.	J. Ellison (R.I.R.)	123
	S. Preston (Buff R.)	123
8.	J. H. Brayshaw (W.W.)	120
9.	S. Lawton (L.S.)	117
10.	B. and W. Atkinson (Barred R.)	107

Other scores are: No. 10 (104), No. 20 (103), No. 35 (103), No. 3 (102), No. 63 (101), No. 12 (100), No. 6 (99), No. 8 (96), No. 27 (93), No. 64 (91), No. 62 (79), No. 29 (75), No. 30 (74), No. 22 (55), No. 28 (55), No. 13 (25), No. 57 (5).

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

BREEDER AND BUYER.

A breeder sells ten pure Padman White Leghorn hens. His customer mates them to a Barron cockerel. Of the first lot of chicks no complaint is made, but in the next two hatches a big percentage throw Buff feathers, and two are almost pure Buff. The male bird is changed, but the same result is apparent in the progeny. The breeder receives a letter, not actually nasty, but what one might describe as of the "beastly polite" type, requesting an explanation, and plainly hinting that the hens are not pure bred, and that the writer has been put to serious loss and inconvenience because of this.

The breeder is perfectly certain that there has been no outcross while the birds have been in his possession, but he cannot answer for their history previous to that. He asks whether it is a case of Reversion, or are the birds Mutants.

Here is another case. A breeder is asked to quote for eight White Wyandotte pullets. He does so, and sends them on approval. They are returned as not being "pure," the plumage being flecked with black. As he has bred them pure for some years, he is naturally much upset.

Similar cases to the above are not infrequent. They are bound to occur as far as the Utility Breeder is concerned, and the charge of outcrossing will be fairly often laid at his door by those who know no better.

If we take the case first mentioned. The explanation suggested, that it is either a case of reversion, or the birds are Mutants, is not acceptable. There are many who believe that Whites are easy to breed because (as they suppose) they have no colour. In the whitest fowls traces of black or red are always present. Fanciers know the whitest birds are likely to have black ticking in the web of the feather, and those that are free from it are likely to be creamy, that is, have a trace of red.

The Fancier does his best to eliminate this, and to a certain extent succeeds. The Utility Breeder does not regard it as a matter of great importance, and the red is present in greater quantities in utility stock than in that of the fancier, with the result that the red toned down by the white gives buff in the plumage to a greater or lesser degree. It is quite probable that some of the females in the first case carried the red to a more than normal degree, but it is also very probable that both cockerels were what is known as "Brassy." With the result that Buff was greatly in evidence in the plumage of the progeny. Of course, the utility breeder cannot sacrifice valuable pedigree males for the sake of breeding as nearly as possible pure white stock, but it is a wise policy to avoid breeding from males which are badly "Brassy."

Had there been an outcross, as the customer suggested, we should at least have expected two or three different types (shape).

With regard to the ticking in the White Wyandottes. The breed, as most of our readers know, is a Sport from the Silver Laced, and carries the black pigment strongly in reserve. This dormant Black often reappears. It is not surprising that it should do so, as the Utility Breeder makes no effort to eliminate it. Furthermore, we must remember that many of our utility strains of Wyandottes are not pure, and when this is the case there is always a tendency to reversion, although the alien blood may have been introduced many generations back.

As an example, we may give a well-known strain of White Wyandottes, which has been very successful in the laying tests of recent years. In this case the outcross was not many generations back. The original birds were bought from the owner, and he supplied the male. In every brood there were black chicks, and he admitted that it was due to his outcrossing. Whether this was resorted to to improve stamina impaired by injudicious selection with one object only in view, or because of too close breeding without individual selection, we cannot say, but it was a mistaken method, and it will take some time to repair the mischief.

Correspondence.

IS GRIT NECESSARY?

To the Editor of "Eggs."

Dear Sir,—Yes, I think it is decidedly so, in some form or other, and I must join forces with the other 95 per cent. whom your correspondent suggests are against you upon this important point.

Dealing first with grit as an aid to mastication, we have to bear in mind that a fowl very often has to pick up a day's food within a few minutes, and in consequence Nature supplies the very necessary storage, called the Crop. It is obvious that a bird cannot digest all the food supplies collected within such a short space of time, but must await the natural functions of the gizzard before deriving any material benefits therefrom.

To be able to follow Nature's course we must first understand the gizzard and its composition and uses; the latter consists of a series of muscles which expand and contract with a rhythmetic motion. The food in the crop is first moistened by the liquid partaken by the birds, and goes through a more or less softening or soaking process and is then slowly taken into the gizzard, where it is gradually pulped and ground into a semi-liquid form and absorbed into the system.

You will ask, Why, if the food is partially softened in the crop, it still requires grit to assist its completion when passed into the gizzard. The inside of the latter is covered with a thick wall of protective skin, but it does not contain any essentials for the grinding up of the food; it simply pulps it, but cannot perform any cutting action so very necessary for correct digestion. The fact that the sharp grit is absorbed with the food into the gizzard very materially helps, inasmuch as the action of the muscles of the latter are continually forcing the grit against the grain, and by this action a much quicker and finer process of grinding is maintained.

Dealing with the voiding of grits, I have never had the experience of a really healthy fowl doing this, but it is a common thing in fowls which are a bit liverish; in fact, if one wants to try the experiment one has only to withhold all grits AND greenfood for a few days and then suddenly give a quantity of sharp flint but NO green food to see it done.

I notice, Sir, you very carefully refuse to commit yourself, that a bird will keep in PERFECT HEALTH AND PRODUCTION without grit of ANY KIND, and you very shrewdly advocate oyster shell for shell purposes only? Surely, Sir, you don't really mean to say that a bird only derives benefit from oyster shell as an aid to shell-forming alone?

I would point out you have requested this discussion of grit as an aid to mastication or digestion and not for the value of its mineral content, and yet you are advocating oyster shell as a grit which can be used exclusively for poultry. To make this clear to your readers, I must mention that oyster shell probably contains more mineral contents and valuable phosphates than all other grits put together. In my opinion oyster shell is the finest grit one can get. I am not writing from any book of reference. I never do, I am writing from experiments carried out some twenty-two years ago when oyster shells could be picked up in my district by the hundreweight for nothing, but take away the valuable mineral properties from them and how much better would they be than anv other grits, certainly not more useful than cockle shell, which I think ranks second to oyster.

If we were to do away with the grits and green foods, with their valuable mineral properties, we should find that sharp flint grit has little, if any value at all, but if we done this we should have a sorry lot of stock. I don't agree that the crop compares with the paunch of ruminating animals. A cow, for instance, settles down after a good meal of grass and starts to chew the cud. Here we have an entirely different action, the latter is continually receiving balls of food from the stomach in which are contained the gastric juices which are blending with the food during the whole time and process of digestion.

Does a fowl receive VERY much gastric juice to aid the digestion in the gizzard? A certain amount probably, but I would rather opine that the juices are from the mineral content of the food and the saliva of the birds themselves.

I don't agree that maize would be sufficiently well ground without grit.

Referring to a Hampshire reader, he answers his own query by stating he ran short of oyster shell, something which contained absolutetly invaluable properties, as a grit for the birds, and I would like to know just what food he was using at THIS time in the form of GREEN stuff. I suggest clover meal, and a poor sample at that, as the poor birds overloading themselves with flint tells its own tale, and again the fact that the droppings were tinged with blood all tells of a shortage of cooling food with good mineral content.

If many poultry farmers would make more observations and digest them (literally, of course), there would not be half the complaints about ailing and unprofitable poultry.

Yours truly,

A. J. HEINZE.

MORTALITY AMONG GROUSE.

To the Editor of "Eggs."

Dear Sir,—Members of the S.P.B.A. who have lost chickens from Coccidiosis will read with some interest the following quotation from "Darlington and Stockton Times," dealing with mortality among grouse.

"Heavy mortality has occurred during the past few weeks amongst grouse on the Bowland Moors, the losses being most severe on Hardon Moor. It is computed that half the birds on the Abbeystead shooting have died, and the mortality on Harden Moor is very high. In every case the birds are in splendid condition, and it is thought that they have died crop-bound."

In my own locality an outbreak occurred recently among some particularly healthy looking chickens which had been on range at a spot where a number of dead blackbirds had been found lying.

Medication proved effectual. Their owner is now keeping as sharp an eye on the wild birds as on his chicken. Trusting these few lines may prove helpful to fellow members.

Yours faithfully,

C. E. TOMPKINS.

BREED STANDARDS.

To the Editor of "Eggs."

Dear Sir,—With further reference to my letter with regard to "Breed Standards," etc., in the Bentley Laying Tests.

In the sixth month report the following list of cups and specials are to be given for birds "passed as conforming to the Breed Standards":—Three cups by the proprietor of "Poultry"; 1st Rhode Island Reds, 2nd White Wyandottes, 3rd White Leghorns, and the following ten from the specialist club of the breed mentioned: Austral Orpingtons, Buff Orpingtons, Campines, Pile Duckwing and Cuckoo Leghorn, White Orpingtons, Black Leghorns, Buff Rocks, Exchequer Leghorns, R.I. Reds, White Wyandottes.

I hope, Sir, this will help to convince you that at least every effort is being made to get only pens that conform to the standard for the breed, and that can be nothing but an advertisement for and a credit to their owners.

Permit me to again sign myself,

Yours faithfully,

"LAYING TEST."

IS GRIT NECESSARY?

To the Editor of "Eggs."

Dear Sir,—You say "all the birds of the air eat grit—wild birds and caged birds. In their case it can hardly be necessary in order to assist them to masticate their food, for all the birds of the air hull the grains and seeds before they swallow them."

How then do you account for the fact that grouse, who subsist almost entirely on the tender shoots of heather (ling), are in the habit of going a considerable distance to a road, if there is one, or to rough scours, or burnsides, for grit, if they happen to live on low flat, or boggy moors, where no grit whatever is to be found.

Yours obediently,
S. ARTHUR PETO.

BEES.

To the Editor of "Eggs."

Dear Mr. Newman,—The article, "Beginning with Bees," in the last number of "Eggs," was very interesting to many of the readers, I feel sure, but more still than to most was it to one who has never quite got over a bad attack of Bee-mania incurred years ago. We, Bee-maniacs, love to swap lies about our pets, even though we do not agree on all points in their management, so I feel sure Mr. Madoc will pardon my giving my opinion, though unasked, and will excuse very mild criticism.

First, about books. I have read, or rather devoured, the book he mentions, "The A. B. C. and X. Y. Z. of Bee Culture," which is a splendid book, and full of information, but its fault for beginners is, I think, that it is too full of information, and the large amount of it, as well as its price, rather puts people off when beginning. The best book by far I have ever seen for those starting is, in my opinion, "The Practical Bee Guide," by J. G. Digges. This little book gives a splendid lot of information in a clear and pithy way. It tells enough of the history and anatomy of the bee, but its real value, in my mind, lies in the clearly-expressed description of how to handle and subdue bees, how to do the various jobs needing to be done by those who like to keep those sometimes irascible little ladies; and in the excellent prints showing how the manipulation is carried out. The price, 3s. 6d., I think, is so reasonable that I feel certain that if it were better known, no bee-lover would be without it.

A point Mr. Madoc does not dwell on is as regards the sizes of the hives. There is no doubt that we in England do not give our bees a fair chance to increase and multiply, as they would like to do. Our hives are far too small. The Americans rightly go in for far larger hives and simpler ones. Their frames are larger and more numerous, and, as a result, the Queens set to work and build up strong colonies, which give a fine harvest of honey.

I would not suggest using in England any but the English standard frame, because it is so universal that buying up a hive one is certain to find those sized frames inside, and, above all, it is necessary to keep to one size so far as possible in all things, but most especially in frames.

For my part I never buy a hive from a shop or firm which makes a fortune in selling things to beginners. I always make my own hives myself, or when hens give me too much to do, I go to a local carpenter and get him to make me a hive according to a very few directions. I tell him to take a frame of the kind on which the bees are requested to build their brood cells, and use this as a measure. He is to allow a space of not more than a quarter-of-an-inch at each end of this, so that the bees will have room to pass round the ends. The same amount is the maximum for the height of the doorway, so that mice cannot creep in and live on the contents of the hive in the winter. I have my frames hung at right angles to the entrance, which latter extends the whole length of the front, and can be partly or totally closed by two sliding pieces of plasterer's lath.

As regards the width, this is where the shop-made hive fails dismally. I had up to this year hives taking two stories of frames, which between them had about 23 frames. These made splendidly strong colonies, which had ample stores for their winter food without any need for artificial feeding. Their only fault is, I think, that the bees, on their arrival with their load of honey have to climb upstairs a long way because even the inventive Americans have not as yet perfected a satisfactory kind of "elevator" for the use of the bees. Thus to fill the shallow extracting frames upstairs, or the 1lb. sections we love to eat, the bee spends too much time and energy in mountaineering—poor little beast.

This year I am having made some hives which will take 26 frames in one long line, bungalow fashion. On the top of these frames will be two crates containing shallow frames for extracting purposes, and on the top of them again will be two frames containing sections. As these latter frames get filled, and before the bees will be beginning to feel they are getting crowded, a second crate of 26 sections will be inserted under the first lot, and whilst the bees are finishing the first lot they will be working on the second one.

The golden rule to get honey is to check swarming by giving the bees room and ventilation. To give them room give them ample space in the brood chamber for the young and for their winter stores, and after that enough and more than enough upstairs to store away the honey for the master.

As regards the best bee, I think the hybrid Italian-English Black is the best. He is hardy, prolific and a good worker, also not too argumentative. If only my White Leghorn hens would lay as many eggs as my Queen bees do—some 3,000 to 4,000 a day in the summer, I could even afford to supply fresh-laid eggs for electioneering ammunition, if asked to.

Once having settled what size of hive is best, keep to that size so that all parts are interchangeable. That saves a lot of spare parts which lie around and excite the derision of those who do not keep bees because they dislike getting stung.

Lastly, learn a foreign language, in case ladies wish to see you manipulate the bees. One is bound to get stung, and I find Hindustanee a very suitable language both for fluency of abuse and also because few ladies in this country know what one is saying.

Try bees, and do not mind if you do go bee-mad. If you do you will, as I often do, raise your glass and say quietly to yourself, "The Queen—God bless her."

"CONFIDO."

EAST ANGLIAN EGG LAYING TEST, 1923-24.

(OPEN TO GREAT BRITAIN).

The following are the leading pens at the end of the seventh month of the above test, which is organised by the North Essex Branch of the N.U.P.S.:—

Section 1.—White Leghorns.

Pos.	Owner of Pen.	Total Eggs.	Score Value.
1.	Dale Egg Farm	461	399
2.	W. Crabtree	368	367
3.	A. K. Speirs-Alexander	360	359

Section 2.—Any Other Non-Sitting Breed.

Pos.	Ownar of Pen and Breed.	Total Eggs.	Score Value.
1.	Miss E. Cavanagh (Ancona)	374	369
2.	R. Lloyd-George (Ancona)	368	354
3.	Misses D. and M. Keech (Ancona)	319	316

Section 3.—White Wyandottes.

Pos.	Owner of Pen.	Total Eggs.	Score Value.
1.	E. Rodger	489	426
2.	A. Gawthropp	466	399
3.	S. and T. Greenall	590	395

Section 4.—Rhode Island Reds.

Pos.	Owner of Pen.	Total Eggs.	Score Value.
1.	Stewart and Allen	408	408
2.	H. Turner	467	373
3.	L. White	333	311

Section 5.—Any Other Sitting Breed.

Pos.	Owner of Pen and Breed.	Total Eggs.	Score Value.
1.	F. D. Montgomerie (Buff R.)	445	445
2.	Thornlea Poultry Farm (L.S.)	431	373
3.	Tom Green (L.S.)	396	395

Section 6.—Any Variety Light Breed (Amateur).

Pos.	Owner of Pen and Breed.	Total Eggs.	Score Value.
1.	G. J. Coverly (W.L.)	96	89
2.	T. H. Aitchison (W.L.)	106	73
3.	H. Farrant (W.L.)	173	62

Section 7.—Any Variety Heavy Breed (Amateur).

Pos.	Owner of Pen and Breed.	Total Eggs.	Score Value.
1.	Mrs. W. F. Atkins (R.I.R.)	235	235
2.	G. Shenton (W.W.)	152	152
3.	Mrs. W. F. Atkins (W.W.)	150	150

NOTE.—Five pullets in Sections 1-5 and 2 pullets in Sections 6 and 7 comprise a pen.

REPORT FOR SEVENTH MONTH.

During the four weeks under review there has been a decrease in the number of eggs recorded, the total having fallen from 4,364 to 4,077.

This is due to the broodiness prevailing amongst the heavy breeds, no fewer than 71 birds having been affected during the month. Of this number 47 birds have been returned to the pens and have re-commenced production.

The percentage of first-grade eggs recorded, compared with the previous month, shows a decrease of .5, the percentage laid during the month being 63.2.

The grade of eggs recorded in the various sections are as follows:—

Section.	First Grade.	Second Grade.	Underweight.
1 ...	630 ...	316 ...	19
2 ...	349 ...	55 ...	2
3 ...	360 ...	422 ...	29
4 ...	538 ...	276 ...	8
5 ...	444 ...	174 ...	6
6 ...	57 ...	50 ...	4
7 ...	200 ...	130 ...	8
	2578	1423	76

In spite of the loss of a bird in the early part of the month Miss Cavanagh's pen of Anconas continues to lead the way in Section 2.

The health of the flock is good.

At the request of the N.U.P.S., Mr. H. A. Hussey paid a visit to the Test, and the Committee have pleasure in enclosing a reprint of his report which was published in the "National Poultry Journal" on April 25th last.

W. M. FEW, Manager.

W. T. WILLIAMS, Hon. Sec.

Breeding for Egg Production

By Capt. C. HESELTINE.

In last week's article the chief matter considered was Hurst's W. Factor (rate of Winter Production). Of the seven pairs of Factors which Hurst identified with Egg Production, not all directly affect fecundity, although all, even the egg size, and egg colour factors may have an indirect effect on the egg yield. We are mainly concerned in these articles with those factors which are directly identified with fecundity, and, after the Factor W., these are the Factors S. (rate of Spring Production), and M. (rate of Autumn Production). The Factor E. (Sexual Maturity) is undoubtedly closely connected with the Factor W., and with the whole question of fecundity, for it is a well-known fact that heavy layers tend to mature earlier than others, and this is very marked in the heaviest laying strains of Leghorns and Wyandottes. It is not unlikely that the two factors found by Hurst are one and the same, and that in actual practice one cannot have a slow-maturing fast winter layer, or an early maturing slow winter layer. It is certainly my experience that the latter do not obtain. I cannot recollect a single early maturer which did not lay heavily, although she might be useless, being small and laying small eggs. She, at least, laid plenty of them. As for the late maturing birds, according to Hurst ,they are birds which take *over nine months* (270 days) laying the first egg. These birds are rarely found in heavy laying strains or outside purely exhibition stock. If they are found in laying strains it must be established that they have not suffered a check, or been otherwise prevented from coming to early maturity, i.e., that the slow maturity is not somatic but genetic.

It is not seriously necessary for the commercial breeder to consider further birds which take nine months to mature, for unless he is keeping them for some special purpose, they would be scrapped from possible inclusion in the breeding pen before the nine months had elapsed.

The late maturing pullet would, with difficulty, pass the test for the W., because, unless she started within a few days of qualifying as a late maturer, she would not be in lay for the necessary 50 days. Thus it is clear that the chances of a bird lacking the factor for early maturity and carrying that for fast winter laying are slight. That, coupled with the point mentioned above, namely, that in practice it is found that early maturers are almost invariably heavy layers (their early maturity appearing to be the result of, or closely connected with, the strain having been bred for heavy laying) makes it very probable that the two things, early maturity and fast winter laying are both manifestations of one and the same genetic factor.

The rate of Spring Production represented according to Hurst by Factor S., has been used by other investigators in preference to the rate of Winter Production, as an indication of fecundity, or as a guide to the probable annual yield, but the majority of investigators and breeders favour the winter rate. The Spring rate is obviously affected by Broodiness, for example, and on this account, Hurst's Factor H. (broodiness) will interfere considerably with the Factor S. In the case of Heavy Breeds, in which non-broodies are rare, the expressed rate of Spring Production would necessarily fall below the possible rate.

Apart from the eggs required for breeding purposes, it is doubtful whether a high rate of Spring Production is altogether desirable, and it is an open question whether a limited amount of broodiness is not an advantage in the heavy breeds. Since one of the essentials of a Light Breed is non-broodiness, any broody Light Breed birds should never be used for breeding.

Speaking generally, it is highly improbable that a bird carrying the factor for fast rate of winter production would be genetically a poor layer in the Spring. According to Hurst, a bird which lays 45 eggs in 122 days, from March 1st to June 30th, is a fast Spring layer genetically. Whilst being fully aware that if that is true, she is *capable* of breeding stock giving anything from 45 to 100 or more in the period. I, as a breeder, should hesitate a very long time before using such a poor performer for breeding; 30 per cent. or even 40 per cent. production *in the Spring*, though broodiness may have interfered, is a pretty poor performance, and neither profitable nor useful. It certainly would need some confidence to use such a bird for breeding.

Whilst acknowledging the difficulty of the work, I cannot refrain from criticising the table published by Hurst, relative to S. Factor. In the first four series of matings the expected result is "all fast Spring layers," and the expectation is justified, for the progeny prove to be all fast spring layers. In the matings of five males with nine females, in which the expected result on Hurst's hypothesis is three fast to one slow, the expected result is obtained, but it is only obtained with a total progeny with 27 birds, and, if I may put it in this way, it is only obtained by the placing of the dividing line between fast and slow at 30 per cent. (The previous matings show nothing about the position of the dividing line; 80 per cent. of the tested progeny are over 50 per cent). In this particular mating the position of the dividing line, and the expected result, depend on two birds just on one side of the line and three on the other. Hurst admits inferior conditions, and it is, therefore, possible that the three just below the division should have been above. This would have made the proportion 23 to 4, which is far from 3 to 1. The point is hardly worth labouring, because in any case the number (27) of birds concerned is too low to be of value in the nature of the investigations.

It would be interesting to know, in this connection, the actual total numbers of parents, and numbers of progeny involved in the matings referred to in each table. In the table which refers to Rate of Spring Production, we have, for instance, there in the first mating, 18 homozygous fast dams, and in the third 36 homozygous fast dams. Were any of the first dams included in the second, or vice versa (being re-mated to other males)?

These enquiries and criticisms are not made with the object of lowering the value of the work under survey, but to find what is practically useful in it, and to promote interest in it. It is hoped that other members of the S.P.B.A. will ventilate their opinions on these matters. There is tremendous value in an open-minded discussion.

(*To be Continued*).

POST-MORTEMS—Continued.

F. T. (Eltham). The hen had a dilated heart and chronic kidney disease. The urethral canals were blocked with solid urea. She was finally self-poisoned by these products. The material adhering to the rump feathers consisted chiefly of urea. There was an egg tumour in the duct.

H.H. of F. The chicken had congestion of the lungs, hardly distinguishable from pulmonary apoplexy, and presumably had no previous illness; but there is not a word of helpfulness in your letter, and it may be desirable to tell others that I am not a magician, and that with every assistance I often fail to diagnose the cause of death, especially with water fowl.

L. A. P. Great pressure of internal fat on ovarium, to which many yolks were attached. Some broken and abdomen flooded. Others had died, and from their decomposing elements an auto-intoxication followed. Reduce tension by fasting and salines.

W. J. R. This was no infectious disease, but pneumonia, and chill of the abdomen as well. Although this chick had not the infectious disease due to aspergilli, it must be remembered that the condition invites infection, and others may have it. One prefers to have two chicks for examination.

A. B. C. (Co. Down). This was a chronic case of tuberculosis, and the hen has been a loss to you for a long time past. Instead of waiting until 15 have died (and meanwhile been sowing the seed of this infectious disease), you should have had a post-mortem made at first. You cannot disinfect a whole farm as one of our lady correspondents remarked, and so you had better give the land a fallow from poultry until the other side of Xmas, and then start again with clean birds from a reliable source. Have a good clean up and burn litter, and disinfect houses and expose to wind and frost.

F. S. B. The muscles of the thigh on the outside were bruised, and from this came the gas, which blew up the skin. If you had slit the skin with a pocket knife you would have made an instantaneous cure.

M. L. From your description I should take it to be infestation with the eye worm (oxyspirura mansoni). It was only imported into this country about three seasons since, but is making headway, unfortunately. American authorities say that the eggs are laid in the eye, and are washed down the tear duct, and thence to the intestines. The eggs hatch and the larvae live on moist ground until about half-grown, and then enter the eye of the chicken direct. If this is correct, we need destroy them in the duct, which is situated in the inner corner of the eye. To operate on so delicate an organ we must first induce local anaesthesia by dropping in a five per cent. solution of cocaine or novocaine, and then a five per cent. solution of creolin. My own experience is in favour of a very dilute perchloride of mercury solution, as one in two thousand of distilled water, as there are gummy products or thick mucus produced, which need to be cleared more effectually than a resinous disinfectant will do. A solution of one in fifteen hundred might be purchased, and twenty-five per cent. water added for the first dressing or two, and the original stronger solution employed if the milder does not prove effectual. Most of the birds on a pheasant farm were affected last year, and this treatment proved successful.

H. LEENEY.

EDITORIAL NOTE.

FIRST CROSS LAYING TEST.

We are asked by Mr. J. N. Leigh to notify our readers that entries for the "Daily Mail" First Cross Test will close on the 1st June. All entries should be addressed as per instructions, contained in the advertisement of the Test in this week's issue.

Modern Poultry Feeding.

By *TOM NEWMAN.*

WELLINGHAM CHICKEN FEEDING EXPERIMENTS, 1924.

First Series.

(Thirty Light Sussex, hatched February 29th, in each experiment).

EXPERIMENT 1 (Red Ring).

10th Week (May 9th): Average weight, 2lbs. .5317ozs. Average increase, 6.9217ozs.

EXPERIMENT 2 (White Ring).

10th Week (May 9th): Average weight, 1lb. 15ozs. Average increase, 6·9ozs.

EXPERIMENT 3 (Blue Ring).

10th Week (May 9th): Average weight, 2lbs. 16ozs.; Average increase, 7.26ozs.

The following is taken from a bulletin issued by the Dominion of Canada Department of Agriculture. The report is made by Mr. F. C. Elford. I think it will be extremely interesting, especially to duck breeders:

FOUR METHODS OF FEEDING GROWING CHICKENS.

This experiment is to gain information upon the methods of feeding chickens upon range. Four methods are used: (1) Hopper-fed with grain and mash. (2) Hand feeding of the grain, and mash in hoppers. (3) Hand feeding of grain, dry mash in hopper, and a wet mash fed twice a day. (4) Dry mash in hopper, and wet mash twice a day, no grain feed.

STOCK AND HOUSING.

On August 1st, 1922, 208 May-hatched chicks, which, until this date, had been fed and housed in exactly the same way, were placed in colony houses and yards, divided into four equal lots, each consisting of thirty-nine Leghorns, nine Barred Rocks, and four White Wyandottes. These lots were housed in separate colony houses, which were placed in large runs containing an abundance of green feed, alfalfa and mammoth red clover. The birds were on free range during the entire experiment.

RATIONS.

The rations were as follows:—

(1) A commercial scratch grain, valued at 43 dollars per ton, of which the manufacturing company's analysis was: Protein, 10 per cent.; fat, 3 per cent.; fibre, 6 per cent.

(2) A home-made mash valued at 45 dollars per ton, composed of equal parts by weight of bran, middlings, corn meal, and ground oats, with one-half part of tankage. The nutritive analysis of this mash was: Dry matter, 89.6 per cent.; digestible protein, 15.5 per cent.; fat, 4.6 per cent.; total digestible matter, 70.2 per cent., with a nutritive ratio of 1.3.5.

(3) Buttermilk, water, grit, oyster shell, and charcoal. (These were kept constantly before the birds in all four lots).

METHODS OF FEEDING.

Lot No. 1. was hopper-fed. This is to say the birds had scratch grain, dry mash, and the other rations constantly before them. In addition, they were given a small quantity of wet mash (containing the same ingredients as the dry mash, but moistened with milk) once a day.

Lot No. 2 was fed in exactly the same manner as No. 1, except that the scratch grain, instead of being kept before the birds, was fed twice a day by hand.

Lot No. 3 was also fed the scratch grain by hand twice a day, but no dry mash was kept before the birds. They received, however, a wet green mash twice a day, made by mixing chopped green feed with twice its bulk of dry mash, and moistening with milk. This mash was made twenty-four hours previous, in order to ferment it.

Lot No. 4 received no whole grain whatever, but dry mash was kept constantly before the birds, and they were given wet mash twice a day. The following table gives the results of the four lots:—

CHICKS. METHODS OF FEEDING.

		WEIGHTS.			FEED CONSUMED.					COST.	
Lot.	No. of Chicks.	Beginning of experiments.	End of experiment.	Gain.	Scratch Grain.	Mash.	Total.	Pounds of feed for pound of gain.		Total.	Of one pound gain.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	ozs.	Dollars.	Cents.
1	52	42	122	80	289	138	427	5	5	8·77	10·9
2	52	43	133	90	193	179	369	4	1	7·40	8·2
3	52	41	132½	91½	185	243	428	4	10	8·47	9·2
4	52	41	132	91	—	447	447	4	14	8·27	9·1

Note.—In the above table no allowance has been made for the milk, grit, charcoal and oyster shell consumed.

Remarks.—As will be noted by the above table, Lot No. 2, fed the scratch grain by hand, gave the best results, for while the total gain in weight was slightly less, the birds ate decidedly less feed, and consequently the cost for one pound of gain was lower. These birds, too, were in far the best condition at the end of the experiment.

Lot No. 3, fed wet green mash and no whole grain, gained the most weight by a narrow margin, but the cost per pound of gain was higher than for lots 2 and 4, and the birds were in the poorest condition of any when the experiment finished, being fat and lazy.

Lot No. 4 made good gains and were in good condition.

Lot No. 1 did not thrive at all well, drank practically no milk, and did not relish the wet mash.

From this it may be inferred that the best results are obtained from feeding the scratch grain by hand, giving a wet mash once a day, and keeping dry mash, together with milk, water, grit, charcoal and oyster shell constantly before the birds. As these are the results of only one year's experiment, however, they must be verified by future experiments before a definite statement can be made.

It may here be said that hand feeding has not always given the best results.

DUCK FEEDING EXPERIMENTS.

Duck feeding experiments have already been conducted from time to time at the Central Farm. Last year experiments were undertaken to determine costs and the relative value of certain breeds for the growing of green ducks. (For details see Annual Report for 1921).

During the summer of 1922, further experiments were carried on along these lines, and also one to determine the value of green feed in the growing of market ducks.

METHODS OF CONDUCTING EXPERIMENTS.

The experiments were each carried on for twelve weeks. During the first four weeks the ducklings were housed in the pine brooder house, and were then transferred to suitable yards with trees for shade and a rough shelter to protect them during inclement weather.

The mash used was composed of equal parts by weight of wheat, bran, middlings, corn meal, and finely-ground oats, with one-half part of beef scrap and 5 per cent. sand.

The mash was valued at 44 dollars per ton, and its analysis gave 14.2 per cent. of digestible protein, 4.8 per cent. of fat, 72.9 per cent. of total digestible nutrients and a nutritive ratio of 1.4.1. The mash was mixed with milk for the first two weeks, after which water was used. Drinking water was also supplied. At first the birds were fed five times daily, but, for the greater part of the experiment, they were fed three times a day.

The ducklings used were sixty Pekins, hatched June 15th, divided into two lots of thirty each, which will be referred to as Lots A. and B.; twenty-four Indian Runners, also hatched June 15th, and which will be referred to as Lot C., and twenty-five Muscovies, hatched June 25th, and which will be referred to as Lot D. The different lots were weighed when taken from the incubators, and each day during the experiment, and careful records kept of all the feed consumed.

GREEN FEED VS. NO GREEN FEED IN THE GROWING OF MARKET DUCKS.

For this experiment Lots A. and B., previously referred to, were used. Both lots were fed and handled identically, except that Lot A. was given all green feed the ducklings would consume, which amounted to about one-third the bulk of all the feed given; no green feed was supplied Lot B.

The following table gives the weekly and the total results:—

GREEN FEED VS. NO GREEN FEED WITH LOTS A. AND B. DUCKLINGS.

Lot A.—Pekins (Green Feed)—

No.		Average weight.		Average gain.	Average feed consumed.		lbs. feed for 1 lb. gn.	
		lbs.	ozs.	ozs.	lbs.	ozs.	lbs.	ozs.
30	Beginning		1·6	—		—		—
30	1st week		3·8	2·1		5·3	2	9·0
30	2nd week		8·4	4·6		9·6	2	0·0
30	3rd week		15·4	7·0	1	2·0	2	8·0
30	4th week	1	6·6	7·2	1	6·5	3	11·0
30	5th week	1	14·0	7·4	1	15·0	4	3·0
30	6th week	2	8·0	10·0	2	12·8	4	0·0
30	7th week	3	3·0	11·0	2	2·0	3	10·0
29	8th week	3	12·0	9·0	2	9·9	5	4·0
29	9th week	4	3·0	7·0	2	6·0	5	10·0
28	10th week	4	14·0	11·0	3	9·1	7	0·0
28	11th week	5	4·0	6·0	3	2·3	8	0·0
28	12th week	5	7·0	3·0	1	14·3	13	0·0
	Total	—		—	25	2·0	4	12·0

Average cost of feed, 0.55 dollars; average cost of ducklings at 25c. as day-old, 0.27 dollars; value per duck at 35c. per pound, 1.89 dollars; average profit over cost of feed and duckling, 1.07 dollars.

Lot B.—Pekins (no Green Feed)—

No.		Average weight.		Average gain.	Average feed consumed.		lbs. feed for 1 lb. gn.	
		lbs.	ozs.	ozs.	lbs.	ozs.	lbs.	ozs.
30	Beginning		1·5	—		—		—
30	1st week		4·0	2·4		5·8	2	7·0
30	2nd week		8·8	4·8		11·2	2	5·0
30	3rd week	1	0·0	7·7	1	4·0	2	12·0
30	4th week	1	8·0	7·9	1	12·8	3	9·0
30	5th week	1	15·6	7·6	2	0·0	4	3·0
30	6th week	2	10·0	10·4	2	10·6	4	2·0
30	7th week	3	8·0	14·0	2	8·0	2	15·0
30	8th week	4	2·0	10·0	2	11·7	4	5·0
30	9th week	4	9·0	7·0	2	12·8	6	4·0
30	10th week	5	2·0	9·0	3	2·0	5	8·0
30	11th week	5	8·0	6·0	3	0·5	9	0·0
30	12th week	5	10·0	2·0	2	0·0	13	6·0
	Total	—		—	25	0·0	4	8·0

Average cost of feed, 0.55 dollars; average cost of ducklings at 25c. as day old, 0.25 dollars; value per duck at 35c. per pound, 1.96 dollars; average profit over cost of feed and ducklings, 1.16 dollars.

It will be noted that, despite the fact that no charge was made for the green feed that was fed Lot A., Lot B. gave a considerably better profit over cost of feed, and also that, contrary to what might reasonably have been expected, they made better growth, and had a more thrifty appearance at the end of the test. Needless to say, these results cannot be taken as conclusive, and further tests along the same lines will be carried on in the near future.

COMPARISON OF BREEDS FOR THE PRODUCTION OF GREEN DUCKS.

For this experiment Lots A. (thirty Pekins), C. (twenty-four Runners), D. (twenty-five Muscovies), previously referred to, were used. All lots were fed and handled in the same way, and in the following tables the figures are arranged so that the different lots may be readily compared. No change is shown for green feed, although the three lots were given all they would consume in the mash.

COMPARISON OF THREE BREEDS IN DUCK FEEDING.

Lot A.—Pekins—

No.		Average weight.		Average gain.	Average feed consumed.		lbs. feed for 1 lb. gn.	
		lbs.	ozs.	ozs.	lbs.	ozs.	lbs.	ozs.
30	Beginning		1·6	—		—		—
30	1st week		3·8	2·1		5·3	2	9·0
30	2nd week		8·4	4·6		9·6	2	0·0
30	3rd week		15·4	7·0	1	2·0	2	8·0
30	4th week	1	6·6	7·2	1	6·5	3	11·0
30	5th week	1	14·0	7·4	1	15·0	4	3·0
30	6th week	2	8·0	10·0	2	12·8	4	0·0
30	7th week	3	3·0	11·0	2	2·0	3	10·0
29	8th week	3	12·0	9·0	2	9·9	5	4·0
29	9th week	4	3·0	7·0	2	6·0	5	10·0
28	10th week	4	14·0	11·0	3	9·1	7	0·0
28	11th week	5	4·0	6·0	3	2·3	8	0·0
28	12th week	5	7·0	3·0	1	14·3	13	0·0
	Total	—		—	25	2·0	4	12·0

Average cost of feed, 0.55 dollars; average cost of ducklings at 25c. as day old, 0·27 dollars; value per duck at 35c. per pound, 1.89 dollars; average profit over cost of feed and duckling, 1.07 dollars.

Lot C.—Indian Runners—

No.		Average weight.		Average gain.	Average feed consumed.		lbs. feed for 1 lb. gn.	
		lbs.	ozs.	ozs.	lbs.	ozs.	lbs.	ozs.
24	Beginning		1·6	—		—		—
23	1st week		4·2	2·6		6·3	2	8·0
23	2nd week		8·4	4·2		11·1	2	7·0
23	3rd week	1	0·1	7·6	1	4·8	2	11·0
23	4th week	1	7·1	7·0	1	15·3	4	4·0
23	5th week	1	13·6	6·5	2	2·8	5	4·0
21	6th week	2	5·0	7·3	1	13·7	7	1·0
21	7th week	2	13·0	8·0	2	11·4	5	3·0
21	8th week	3	4·0	7·0	2	3·8	5	1·0
21	9th week	3	8·0	4·0	2	3·8	7	13·0
21	10th week	3	14·0	·6	2	14·5	8	6·0
21	11th week	4	0·0	·2	2	10·6	24	14·0
21	12th week	4	2·0	2·0	1	14·5	16	0·0
	Total	—		—	23	7·0	5	15·0

Average cost of feed, 0.52 dollars; average cost of ducklings at 25c. day old, 0.29 dollars; value per duck, 1.44 dollars; average profit over cost of feed and duckling, 0.63 dollars.

Lot D.—Muscovies—

No.		Average weight.		Average gain.	Average feed consumed.		lbs. feed for 1 lb. gn.	
		lbs.	ozs.	ozs.	lbs.	ozs.	lbs.	ozs.
25	Beginning		1·5	—		—		—
24	1st week		2·2	0·7		1·3	2	0·0
24	2nd week		3·9	1·7		4·6	2	5·0
21	3rd week		6·3	2·3		7·6	4	3·0
21	4th week		10·0	3·7		11·1	3	1·0
21	5th week	1	0·1	6·1	I	5·3	3	8·0
20	6th week	1	8·0	7·8		15·8	2	10·0
20	7th week	2	4·0	12·0	1	1·8	3	0·0
20	8th week	2	14·0	10·0	1	10·2	2	15·0
20	9th week	3	12·0	14·0	2	6·4	2	11·0
20	10th week	4	10·0	14·0	2	12·8	3	5·0
20	11th week	5	4·0	10·0	2	8·0	3	13·0
20	12th week	5	11·0	5·0	2	8·8	5	11·0
	Total	—		—	18	5·0	3	5·0

Average cost of feed, 0.41 dollars; average cost of ducklings at 25c. as day old, 0.31 dollars; value per duck at 35c. per pound, 1.99 dollars; average profit over cost of feed and duckling, 1.27 dollars.

Lot D. (Muscovies) showed a much more economical growth than did either Lot A. (Pekins) or Lot C. (Runners). They were much more docile, were not as voracious feeders, eating in a much more leisurely manner, but their growth indicated that they made good use of all they consumed. Their maximum growth was spread over a considerably longer space of time than was the case in either of the other breeds; in fact, although the test ended at the end of the twelfth week, they continued to make economical gains, and twelve days later had reached an average weight of 6lbs. 12ozs.

These figures indicate: (1) The advisability of marketing the Runners at an earlier date than the Pekins, and the Pekins at an earlier date than the Muscovies. (2) That when marketed at twelve weeks of age the cost per pound of gain was the lowest for Lot D. (Muscovies), being only 7 cents., as compared with 10 cents. for Lot A. (Pekins) ,and 13 cents. for Lot C. (Indian Runners). (3) That the profit over cost of stock and feed was the highest for Lot D. (Muscovies), being 1.27 dollars, as against 1.07 dollars for Lot B. (Pekins), and .63 dollars for Lot C. (Indian Runners).

The results in this experiment bear out those obtained in the previous experiments already referred to, in which Muscovy ducks gave an average profit of 1.41 dollars over cost of stock and feed, while Pekins gave only an average of 1.22 dollars. This experiment will be repeated in order to see if the results obtained will be verified.

LANCASHIRE FEDERATION OF UTILITY POULTRY SOCIETIES.

A Quarterly Meeting of Delegates will be held in the Master Builders' Rooms, Mount Street, Preston, on Saturday, May 31st, 1924. Chair to be taken at 3.30 p.m.

AGENDA.

1. Minutes of last Quarterly Meeting.
2. Letters and Communications.
3. Election of Delegates to National Poultry Council for 1924-5.
4. Show 1924 Appointment of Judges.
5. Sub-Committee's Report, Finance Laying Test, Educational.
6. Any other business.

E. COLLIER,
Organising Secretary.

The following Sub-Committees are requested to meet at the same place:—

1.30 p.m.—Educational and Propaganda: Messrs. J. R. Hull, W. Grove, T. Edmundson, J. Dewhurst, J. Whalley, W. Fletcher, and W. A. Hall.

2.30 p.m.—Laying Test: Messrs. J. Edmundson, J. C. Barnes, T. Hudson, H. Hayes, W. Hamnett, J. E. Morris, N. Holt, and H. Roscoe.

2.30 p.m.—Finance: Messrs. J. H. Hill, W. Hamnett, J. Graham, F. J. Butterworth, J. P. Willacy, and S. Marson.

I am anxious to bring Federation work before the masses of poultry-keepers in the county, and it is my feeling that a copy of all agenda and reports of all meetings be sent to the papers of standing in every district, and every agenda, etc., thus sent, should have the name of local society affiliated, also name,, etc., of local Secretary. So will the secretaries, through their delegates, please send two or three most widely read weekly papers in their respective districts.

Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Brydon, John Duncan, Linkview Poultry Farm, Drem, E. Lothian.
Corsellis, Mrs. M. V., Redlands, Horeham Road, Sussex.
Robinson, W. J., Castle P.F., Bransdale, Kirby Moorside.
Ellis, Sidney, Manor Farm, Longney, near Glos.
Brown, Miss E. L. J., "Castle Grym, Elm Park, Pinner, Middlesex.
Dean, Stephen, Yew Tree P.F., Birchencliffe, Huddersfield.
Thorpe, K. E. B., 73, Park Road, St. Anne's-on-Sea, Lancs.
Jeanes, C. H., "Cempra," Pinehill Road, Crowthorne, Berks.
Grant, J. R., Northleigh, near Witney, Oxon.
Cox, Alfred G., 14, Mill Road, Erith.
Hicks, Albert E., Foley Poultry Farm, Staunton, near Glos.
Stebbings, Wm. J,. Kilsmore, Church Lane, Cheshunt, Herts.
Hughes, W., 148, Queen's Road, S. Farnborough, Hants.
Pentin, M. L., The Grove, Portland, Dorset.
Boyton, Mrs. E. M., Brook Street, Watlington, Oxon.
Hamilton, Mrs., Hamwood, Dunboyne, Co. Meath.
Woodward, E. Ed., 62, Champion Park, Sydenham, London, S.E.26.
Wildridge, Hubert, Waddesdon Estate Poultry Farm, Aylesbury, Bucks.
Sullivan, H. R. F., Stibbington, Peterborough, Northants.
Turner, Mrs. M. E., Windylea P.F., Charsfield, Wickham Market.

SECOND MIDDLESEX COUNTY LAYING TEST.

The above was held at Hearne House Poultry Farm, Hayes, Middlesex.

REPORT FOR SEVENTH MONTH.

Light Breeds (Single Birds).

Pos.	Owner and Breed.	Total.	Score.
1.	J. and A. Moore (B.L.)	132	132
2.	Roebuck and Illingworth (B.L.)	124	124
3.	J. A. Howarth (W.L.)	117	117
4.	Major E. Kingscote (Ancona)	115	115
5.	F. J. Betts (W.L.)	110	110
6.	Mrs. Paulet (B.L.)	109	109

Heavy Breeds (Single Birds).

Pos.	Owner and Breed.	Total.	Score.
1.	H. J. Veeger (L.S.)	146	146
2.	Mr. and Mrs. Lade (R.I.R)	141	141
3.	A. Snowden (W.W.)	132	132
4.	W. Measures (R.I.R.)	128	128
5.	P. E. White (W.W.)	128	128
6.	J. Sykes (W.W.)	126	126

Light Breeds (Pairs).

Pos.	Owner and Breed.	Total.	Score.
1.	E. and W. A. Franey (W.L.)	215	205
2.	F. C. Tomlinson (W.L.)	209	200
3.	W. G. Grist (W.L.)	204	195
4.	Mrs. H. Kent (W.L.)	203	195
5.	Davey and Son (B.L.)	192	192
6.	L. C. Turnill (Minorcas)	190	190

Heavy Breeds (Pairs).

Pos.	Owner and Breed.	Total.	Score.
1.	Major E. Williams (R.I.R.)	263	263
2.	A. D. Prince (R.I.R.)	257	257
3.	W. Claughton Douglas (W.W.)	247	247
4.	P. E. White (Buff Rocks)	240	240
5.	G. A. Dawson (R.I.R.)	239	239
6.	Mrs. M. Rogers (R.I.R.)	238	231

H. Winch leads the cross section with 125 eggs.

(Signed) (Mrs.) LILIAN SMITH,
Manageress.

YOUNG STOCK.

By JOHN MEEKINGS.

As May approaches, we turn to it with a sigh of relief, as for most of us it is the finish of a brooding season, made difficult, and in many cases disastrous by inclement weather. The period of the year that is just past, even if conducted under the most favourable conditions, proves a time of considerable strain to the progressive poultry farmer, being additional to all the other work. No little wonder, then, if after three or four months of it, under long and wintry days, the stock of patience is exhausted, and the body tired out There is considerable consolation, however, if the fruit of the labour is represented by a flock of healthy and growing pullets, and this year, I suppose, at this time there are more two and three month old stock than ever before—or should be, were we better prepared for emergencies. There is no doubt that a severe winter jeopardises the early hatches, except in cases where considerable skill goes hand in hand with the ideal brooding system. Exactly what that is remains still to be divulged. I have been recently accused of writing in a "pessimistic" vein. I assure readers of "Eggs" I have no reason to do so, and should change the word into "serious," since we are all agreed that brooding is the most important factor, and that we still remain far from the ideal; so that there is all the more reason to treat this matter seriously.

This article is inspired as I move about my farm, and see some two and a half thousand pullets rapidly growing into adolescence. I am inclined now that brooding is over to rest on my laurels, and to think that many of my colleagues feel likewise. It is natural to give the chickens during the brooding period the maximum amount of attention, and I regret to say that very often in the later rearing stages only the minimum attention is meted out. Extreme care must be taken from the time the chicks are weaned from the heat of the brooders, until they mature, to see that they develop properly. Faulty conditions may so retard growth as to affect the vigour and vitality of the stock. They must be kept normally developing throughout the growing period. In the early autumn one is repeatedly being asked to explain why pullets are late coming into lay, or why they lay a few small eggs, and then stop, etc., etc. In the majority of cases these delinquencies are the result of careless treatment during the rearing season. Proper housing and correct feeding are two important steps in the ladder to normal production. The houses in which chickens are reared should themselves promote efficient growth; they should afford ample protection from the weather, and at the same time be well ventilated. Stuffiness is often the main feature in the colony house, and the reverse condition, draughts, causes considerable damage. Strive to make your colony houses as comfortable as possible for all occasions. There is many a farmer, who whilst convinced of the soundness of brooding in small numbers, will house growing pullets by the hundred in houses which have not been specially constructed for this particular work.

Overcrowding is a familiar word; it has a horrible sound in the ears of many. Many forms of brooders are schools in which chickens are taught to crowd to a fine art. If the chickens have learnt to crowd in their early days, they will go on crowding under the most ideal conditions until they perch, and even there they will huddle together. The floors of the rearing houses are best covered with a fine layer of soil, and short litter; corners should be rounded off with wire, and the chicks transferred in lots of 100-200. The smaller the unit, of course, the better. If the weather is cold, and with the early hatches it is unwise to deprive the chickens of heat until they are eight weeks old, care should be taken that the degree of ventilation in the colony house should not exceed that of their brooder house until the chicks have got thoroughly accustomed to being without their brooder. Young stock are often taken from a sparsely ventilated brooder to a cold and draughty colony house; the result is, unholy crowding, which interpreted means sweated, and in time uneven, emaciated chicken. Where chickens are reared in open-fronted houses, this difficulty does not arise.

In a very short period of time the birds may be encouraged to perch on low frames, or by placing step-ladders on to the ordinary dropping boards. I do not find that early perching is resultant in crooked breast-bones; I think the responsibility for such a deformity can be laid at the door of the imperfect breeder, or to some deficiency in the feeding.

Segregation of the chickens, according to sex, is also necessary. The time for this, of course, varies according to the breed; cockerels of the lighter class being removed when about eight weeks, heavier breeds may run with the pullets until they are ten to twelve weeks without fear of harm to the pullets.

With the pullets safely placed on one side, it is now up to the attendant to give them such treatment as to ensure them being in good laying condition at the proper time.

The pullets' growth should proceed without interruption; readers should bear in mind that a check to growth at any stage retards laying at maturity. Influences which are adverse to the development of the body, will also be adverse to the proper development of the reproductive organs, upon which egg production depends. Furthermore, a pullet that has suffered set-back during its growing life will never make the perfect breeder. In the highly fecund strains it is natural for the productive organs of the female to develop very rapidly; unless we are fully awake to the heavy claim this makes upon her, we cannot appreciate the needs of the rest of her frame. Year by year one sees birds laying long before the body has finished its normal development. When precocity beats development, degeneracy sets in, and that means smaller eggs, faulty texture, and lack of stamina.

Avoid disturbing the growing flocks as much as possible; keep them in the same place and under the same conditions; if you wish to retard growth, you can do so by frequently moving your birds. Regular treatment and careful handling at all times is the best. Remember your youngsters are sensitive to strange objects and conditions. It is not always possible, of course, to put pullets straight into the laying houses from the brooders; if it is possible, it is the easiest and best way. If plenty of free range is to hand, nothing will suit your young stock better; make a point, however, of getting them into the laying quarters about a month before they commence to lay. This allows them to settle down and become acquainted with their new conditions. Use every means in your power to keep up the constitutional vigour and vitality of these little egg machines.

From time to time, about once a month, a percentage of the pullets should be handled. Satisfy yourself that the weight and general condition is up to par. You may or may not be using the correct feeding for the best results. For example, two seasons back, I was not at all satisfied with the weight of my pullets on lay; to look at they were the picture of health, but on weighing, they were half a pound down. It took two months of special feeding to bring them up to the required weight. Study your young stock, and they will make better layers and satisfactory breeders.

Re S.P.B.A. FOOD SCHEME.

To the Editor of "Eggs."

Dear Sir,—I regret to note that this scheme is not getting the support expected (vide May 7th issue of "Eggs").

Surely S.P.B.A. members are not going to let a good scheme like this fall through for lack of a little extra energy on their part.

We all know that this is a very busy season of the year, but when things are easier let us all put our shoulders to the wheel and get this scheme going.

No doubt a large number of members have only storage accommodation for small quantities of foodstuffs. These would not be interested probably, but, on the other hand, there must be hundreds of people like myself, with 350 adult stock and upwards; why do they not come forward? Have they all gone broody?

Yours faithfully,
ARTHUR H. BIRD, R.D.,
Captain, R.N.R. (retired).
Upshire Poultry Farm, Lambourn, Berks.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, MAY 23rd, 1924.

GRAIN AND FEEDING STUFFS.—The very small supplies of English wheat on offer are readily cleared; prices advanced at Bristol and declined at Hull, with the result that the average price of 11s. 3d. per cwt, is the same as last week. English barley is very scarce, but imported descriptions are in good supply and sell at about recent quotations. Home-grown and imported oats are in fair request and prices record no material alteration. Maize is in short supply and dearer, although the increase in price has somewhat checked the demand; new crop Argentine maize meets a good inquiry in London and is quoted at 44s. per 480 lbs. as compared with 41s. 6d. for old crop last week.

Bran is in very quiet request, and at an average price of £7 9s. per ton is 7s. cheaper on the week. A steady demand exists for middlings and recent quotations are firmly maintained. Oilcakes meet a fair enquiry for the time of year; linseed cakes are about unchanged in value, but cotton cakes record a further slight advance.

MILLERS' OFFALS.—Bran (British): Bristol, £7 17s.; Hull, £7 2s.; Liverpool, £7 5s.; London, £7 12s. Broad Bran: Hull, £8 12s.; London, £8 12s. Middlings: Fine (Imported): London, £9 10s.; Coarse (British): Bristol, £9 5s.; Hull, £9; Liverpool, £8 5s.; London, £9. Pollards (Imported): Bristol, £7 15s.; Hull, £7 5s.; Liverpool, £6 17s. Rice Bran: Bristol, £7 10s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £10 10s.; Hull, £10; London, £10 10s. Maize Meal: Bristol, £12; Hull, £11 3s.; Liverpool, £10 15s.; London, £11 10s. Maize Germ Meal: Bristol, £11; Hull, £10; London, £9 2s. Maize Gluten Feed: Bristol, £11 5s.; London, £9 7s.

EGGS AND DEAD POULTRY.

Increased quantities of British and imported eggs are arriving and prices generally are lower, although a good trade is experienced. Little change is reported for dead poultry, but average quotations for English birds at London are weaker owing to increased offerings, while imported poultry is in better demand at recent quotations.

Week-end Prices—Eggs (per 120): British, 13s. 9d., 13s.; Irish, 13s. 6d., 13s.; Danish, 15s. 6d., 14s. 6d.; Dutch, 15s. 9d., 14s. 6d.; Italian, 13s. 9d., 13s. 3d.; Russian, 12s., 11s. 6d.; Styrian, 13s., 12s 6d.; Belgian, 13s. 6d., 13s.; Chinese, 11s. 6d., 10s. 6d.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 9d., 2s. 4d.; Irish, 2s. 3d., 2s.; Others, 2s. 3d., 2s. Ducks, 2s., 1s. 9d.

EGGS.

Per Doz.—Ashford: First, 1s. 4d.; Second, 1s. 2d. Birmingham: First, 1s. 3¼d. Bridgwater: First, 1s. 2d. Carlisle: First, 1s. 4d. Chelmsford: First, 1s. 4¼d.; Second, 1s. 1¾d. Denbigh: First, 1s. 2d.; Second, 1s. 1d. Derby: First, 1s. 3d. Dorchester: First, 1s. 2¾d. Exeter: First, 1s. 4d. Guildford: First, 1s. 7d.; Second, 1s. 1d. Hereford: First, 1s. 1d. Hull: First, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 3d. King's Lynn: First, 1s 3d.; Second, 1s. 1d. Lincoln: First, 1s. 3d. Llandilo: First, 1s. 1d.; Second, 1s. 0d. Montgomery: First, 1s. 1d. Newport (Mon.): First, 1s. 3d.; Second, 1s. 2d. Norwich: First, 1s. 2¾d. Oswestry: First, 1s. 1d. Penzance: First, 1s. 3d.; Second, 1s. 2d. Salisbury: First, 1s. 2½d.; Second, 1s. 1d. Shrewsbury: First, 1s. 2d.; Second, 1s. 1d. Skipton: First, 1s 4d. Truro: First, 1s. 3d. York: First, 1s. 4d.; Second, 1s. 3d.

FOWLS.

Per lb.—Birmingham: First, 1s. 9d.; Second, 10d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 10d. Hereford: First, 1s. 8d. Ipswich: First, 1s. 10d.: Second, 1s. 8d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 2s. 4d.; Second, 2s. 2d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Truro: First, 1s. 4d.

DUCKS.

Per lb.—Birmingham: First, 2s. 0d.; Second, 1s. 9d. Exeter: First, 1s. 9d. Llandilo: First, 2s. 6d.; Second, 2s. 4d.

* Per Head.

Classified Advertisements.

(PREPAID RATES.)

1d. per word—minimum charge, 1s. 0d. Bold headlines inserted at an extra charge per insertion according to size as below:—

DAY-OLD CHICKS, per line, extra 9d.
DAY-OLD CHICKS ,, ,, 1s.
DAY-OLD CHICKS ,, ,, 1/6

Advertisers who desire bold lines inserted should calculate from the above specimens the number of lines they will make, and remit accordingly. When the remittance does not cover the size selected, a smaller corresponding size type will be used.

Insertion constitutes acknowledgment of remittance in the case of pre-paid advertisements. For a series of 13 insertions or more a receipt is forwarded.

SERIAL RATES.

3 insertions for the price of 2
6 ,, ,, ,, 4
9 ,, ,, ,, 6
13 ,, ,, ,, 8

N.B.—Advertisements, unless accompanied by correct amount, will not be inserted.

Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office FIRST POST FRIDAYS for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

PULLETS.

FOR SALE.

12 Rhode Island Red Pullets, four months old; sire's dam laid 266 in pullet year; 9s. each; six cockerels, same age, 4s. 6d. each. Apply — A. E. Spencer, Denholme, near Bradford, Yorks.

MAJOR ROBERT LETHBRIDGE,
BROOMHILL, TIVERTON,

Offers Pedigree Rhode Islands Red, 1923 Pullets; splendid layers, by 302, 284, 291 egg males; 8s. each; to make room for 1924 stock. Orders booked for three months old pedigree Pullets. Delivery April onwards.

1924 PULLETS.

We are now booking orders for early Pullets for delivery any time. Light Breeds from two months, heavies from three months. Varieties: Leghorns (White, Black and Brown), Anconas, La Bresse (Black and White), W. Wyandotte, R.I.R., Buff and Barred Rocks, Light Sussex, Houdan, Faverolles.—Particulars, etc., Purley Poultry Farm, Old Lodge Lane, Purley, Surrey

Earlier healthy maturity for your chicks

Bring your chicks to maturity three weeks earlier with Ful-O-Pep Growing Mash. Healthy, robust, strong young birds soon to be in full lay.

Yet Ful-O-Pep is not a stimulant. It is a nourishing, readily digested poultry food, building up your birds earlier—but *naturally*—for table or for laying.

Ful-O-Pep Growing Mash never sours. Tip two or three days' supply into the hopper at once, straight from the bag. Let the birds have all they want all the time with *one* mixed grain feed per day only thrown into the litter at dusk. That's all. After that, profit.

Save time and loss by reading the chapter on chick-raising in the Ful-O-Pep Monthly Guide, sent FREE and postage paid. The Guide has illustration and full details of the All-age Self-feeder.

FUL-O-PEP GROWING MASH

NO MIXING : NO HEATING WATER : NO TROUBLE.

Sold only in sealed bags. When buying Ful-O-Pep always look for our trade marks: the word Ful-O-Pep and the two fighting cocks on the bag.

8

Guaranteed by QUAKER OATS LTD. 11, Finsbury Sq. E.C.2.

PULLETS.

FOR SALE.

Rhode Island Red Pullets, three months old, from trap-nested hens with excellent winter records; 8s., 10s., and 12s. 6d. each; carriage paid. Satisfaction guaranteed.—Coulson, S.P.B.A., N.U.P.S., St. Just Poultry Farm, Chew Magna, Somerset.

Pullets (1923). White Leghorns, from trap-nested hens, 7s. 6d. each.—Wilson, M.S.P.B.A., "Minorca," Denholme, Bradford.

February Hatched Pullets. W. Wyandotte, R.I. Red, Light Sussex, from 7s. 6d. each.—Mrs. Munday, Mersham, Kent.

RHODE ISLAND REDS.
PEDIGREE STOCK ONLY.

Few two and three months Pullets, all individually marked, from Dr. Baldwin's Registered Pen I.; E. Leslie Pattison's Pens III. and V.; Own Pen I. (Registered) Price, from 12s. 6d. Also few 1923 Trapnested Pullets, from 10s. See advertisement under Cockerels. — Colonel Clark, Bransgore, Hants.

1924 RHODE ISLAND RED PULLETS.

Major Robert Lethbridge, Broomhill, Tiverton, offers sound well-grown 3, 4 months old pullets, individually marked to special hens or to S.P.B.A. registered pens, also few early cockerels from 285, 280, 242 egg dams. All breeding stock trapnested; records 200 to 285. Details on request.

BARNEY POULTRY FARM,
GUIST, NORFOLK.

Early Pullets, 3 months old. Prompt delivery. White Leghorns. Wyandottes. R.I.R., Light Sussex; 7s. 6d. each. Cash with order.

200
WHITE LEGHORN PULLETS,

hatched February 28th and March 12th, all strong healthy and well-developed; price £35 per 100, or 7s. 6d. each; carriage paid on lots of twenty. — Gush, Hartley Wintley, Hampshire.

LONGWOOD POULTRY FARM,
ALDRIDGE ROAD,
WALSALL.

A few January, 1924, hatched R.I.R. and W.W. Pullets, from 11s. each.

1924. PULLETS. 1924.

Selected, large, big-framed Pedigree Pullets, from egg record parents, January and February, 1924, hatched. Light Sussex (Russel-Cook), Rhode Islands (Golden-Russel), White Wyandottes (Cam-Barron), all guaranteed healthy; 10s. each, £5 17s. 6d. dozen; carriage paid.—
G. W. BELL, N.U.P.S.,
"Lord of the Manor," St. Lawrence, Ramsgate.

COMMANDER TIPPET,

Goring Heath Pedigree Poultry Farm, Oxon, offers 150 1923 hatched, trap-nested **WHITE LEGHORN PULLETS,** all L2, of grand stamina, which must be cleared before August. They will make **VERY VALUABLE BREEDERS** for next season. 9s. 6d. each, £5 per doz. Offers invited for quantities.

EG

Wednesday, June 4th, 1924.

EGGS

THE OFFICIAL ORGAN OF
THE
SCIENTIFIC POULTRY BREEDERS ASSN.

(Founded in 1912 by RANDOLPH MEECH).

Registered at the G.P.O. as a Newspaper.
Vol. IX. No. 23 Copyright.

Edited by TOM NEWMAN
PRICE TWOPENCE.

Twelve Months	Post Free	12/8
Six Months	,, ,,	6/4
Three Months	,, ,,	3/3

PEDIGREE WHITE RUNNER DUCKS.

Bred and owned by Miss HARRISON BELL, of Welwyn, Herts.

White House Poultry Farm

has real good 1923 hatched Pullets.

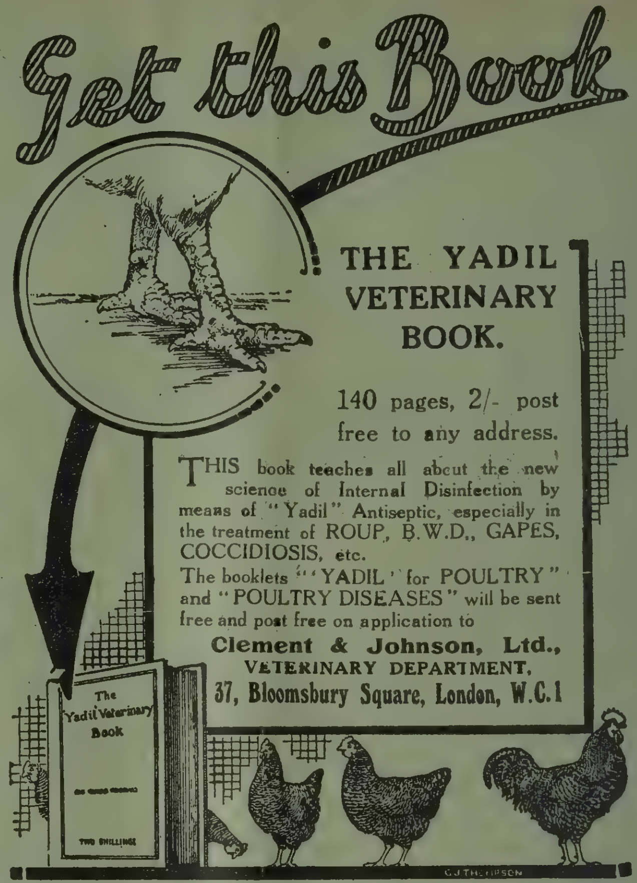
RHODE ISLAND REDS
LIGHT SUSSEX
WHITE WYANDOTTES
WHITE AND BLACK LEGHORNS

These birds are all related to those in the leading laying tests, and are all good layers, but must be cleared to make room for 1924 stock

8/- each.

The WHITE HOUSE POULTRY FARM.

ST. NEOTS,
HUNTS.



THE YADIL VETERINARY BOOK.

140 pages, 2/- post free to any address.

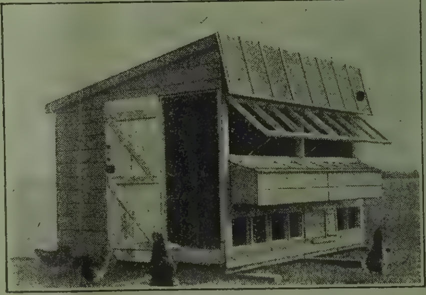
THIS book teaches all about the new science of Internal Disinfection by means of "Yadil" Antiseptic, especially in the treatment of ROUP, B.W.D., GAPES, COCCIDIOSIS, etc.
The booklets "'YADIL' for POULTRY" and "POULTRY DISEASES" will be sent free and post free on application to

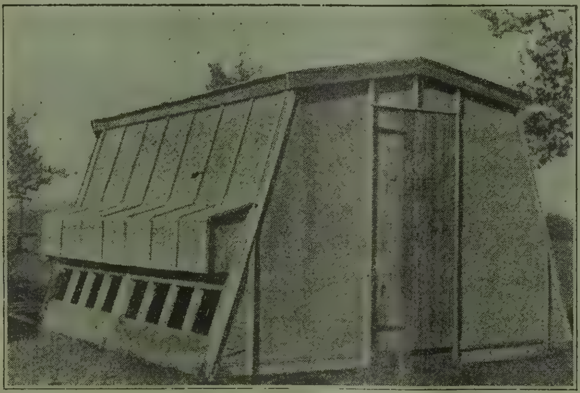
Clement & Johnson, Ltd.,
VETERINARY DEPARTMENT,
37, Bloomsbury Square, London, W.C.1

EXTENSIBLE UNIT BUILDINGS.

Lean-to Model, latest type, in depth of 8ft. by 10ft. or 12 ft., height 6ft. rear, 7ft. 6in. front, in any length from 10ft on. Designed to meet the severest weather conditions, with same form of ventilation and lighting as Span-roofed types of Extensible Unit make.

10ft. by 8ft., from **£17 15s.** complete.





A new Model suitable for rearing, brooding, or laying. Can be supplied complete for latter purpose, or without nests, etc.; also without floor. It makes an admirable, economical rearing house. Designed to take special kind of felt on M.B. wall panels, or heavy W.B. ¾in. without felt covering. In any length, depth from 10ft., height 6ft. 6in. at eaves.

RUBERHOUSE, 10ft. by 10ft., complete with nests, felt, glass, inside fittings, ¾in. W.B. and floor, **£17 10s. 0d.**

Ditto, without nests and fittings, ⅝in. M.B., without felt, but including floor, **£16 0s. 0d.** ex mill.

W. H. COLT, M.N.U.P.S. M.S.P.B.A.

Bethersden,——Kent.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, June 4th 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

THE SECOND WORLD'S POULTRY CONGRESS.

It would be far more easy to write coherently of the social side of the World's Poultry Congress than of the business side for many reasons. We are not suggesting that the social side tended to make us "incoherent," merely that it certainly possessed more continuity of purpose than did the actual Congress itself. If one may put it in this way, the Congress was never together except at the opening and closing ceremonies, the members met each other individually to their mutual pleasure and benefit, but we did not meet collectively. Here were experts gathered together from all parts of the world, to pool their knowledge. One looked forward to clever papers and interesting discussions. The papers were there, and men of world-wide renown were there to read them, but there was no discussion, because there was no one to discuss them. No one could say that at a definite hour such a paper will be read, in such a place; consequently we did not know when we were to read our papers, and there were rarely more than 10 to 12 delegates to listen to any one paper. In this respect then the Congress must be regarded as a disappointment. What little discussion took place was not very helpful; therefore we shall not deal with the papers here, but hope to publish the more interesting and more important of them from time to time, or at least extracts from them.

THE EXHIBITION.

If one can only speak of the Congress as far as the lack of discussion on the papers is concerned as a great disappointment, it is a pleasure to be able to say that the Exhibition itself was a distinct success. The conditions were ideal, the magnificent hall, beautifully decorated, lent itself to the occasion; the light was excellent, and there was ample space. Dealing first with the birds:—

One must give pride of place to the British Exhibit, as a whole, it was a long way ahead of that of any other country, but, and this is important, it cannot be said that our lead was as strong as it was at the Hague Congress in 1921. This is an indication that our foreign friends are creeping up, and we must not be content to rest on our laurels. Speaking frankly, one may say that our best is very good, indeed, but that our average wants raising considerably. Our breeders are to be congratulated on the birds sent, and, speaking from the point of view of the utility breeder, we would specially mention the White Bresse, sent by Captain and Mrs. Leslie Smith, which we consider to be the best of this variety we have ever seen exhibited. French visitors were greatly interested, and were unanimous in their admiration, and agreed that they could not show anything to equal them. Mr. Leslie Williams' pen of White Wyandottes were worthy of the reputation of the British breeders. They were excellent. The Barnevelders, shown by Mrs. Walker, were at least equal to anything which our Dutch friends exhibited. Mr. Street - Porter's "Coveney Whites" attracted a great deal of attention, and one realises they are a breed of great possibilities. Admiral Cayley had a very nice pen of Exchequers. Sussex of all varieties were of excellent quality—the best all-round breed in the world is a truly British product, and we were glad to see it so well represented. Great credit is due to Mr. and Mrs. Grant, Mr. Russell, and Mr. Howard for their exhibits; the Reds were especially good. Mr. Hurman had a very nice pen of R.I. Reds.

If we held pride of place, then to the Dutch section must be awarded the second card. Our friends at the Hague are to be heartily congratulated on the advance made. The Hamburghs and Polish were especially good.

The United States sent 22 exhibits; the bird were a high-class lot, and they stood the long journey well.

We heard the remark that they were "not typical of high-class standard stock," and wondered in what sense the word "standard" was employed. It is so easy to look at these things from our own point of view alone. One cannot accept the British exhibition standard to judge the birds of another country by.

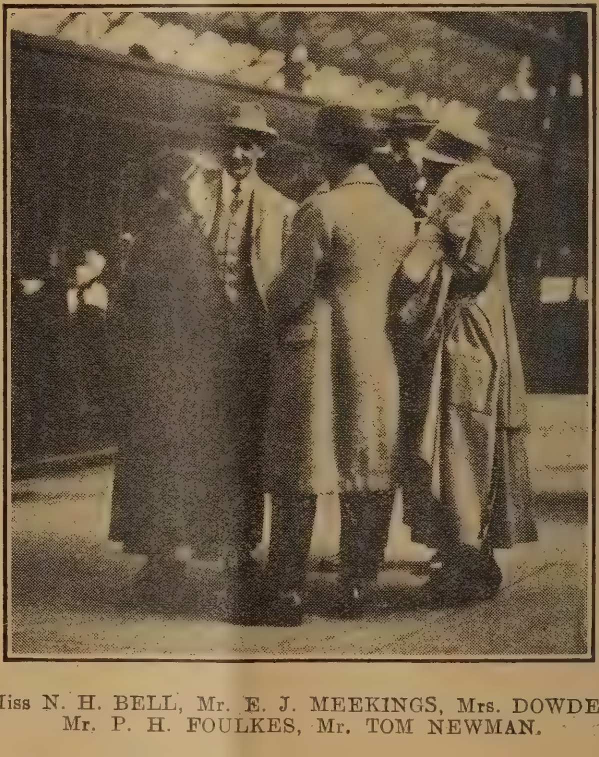
DELEGATES TO THE SECOND WORLD'S POULTRY CONGRESS AT BARCELONA.

Left to Right: Mr. E. J. Meekings, Mrs. McIver (Scottish Board of Agriculture), Miss Murphy (Ministry of Agriculture, North Ireland), Mr. and Mrs. Dowden, Mr. Tom Newman, Mr. Stanley Street-Porter, Major Eden, Mr. J. G. Kitson (President, S.P.B.A.), Mr. P. Hedworth Foulkes.

The White and Barred Rocks were really good. The Rhodes were rather lighter in colour than ours, and, to our mind, more "red," the type was excellent. The White Leghorns are not to our mind so attractive as the British utility type, and the Browns it was difficult to recognise. They were so entirely different to the type we are accustomed to. This remark applies only to the colour. They were much darker than our birds, and the male was not nearly so attractive, while the pullets lacked that soft beauty which our birds possess. The Light Brahmas were higher and much more sparsely feathered on the leg, and tighter in feather than ours. This is not intended as a criticism. The Light Brahma in this country is only bred by the hobbyist, as is the Cochin. We succeeded in killing both breeds for a fad, viz., extremes in feathering.

Canada's exhibit was a most attractive one, the Barred Rocks were to our mind, and there were many in agreement, the most handsome birds in the show, and, combining as they did their great utility qualities, one of the finest tributes to the skill of the breeder that one could wish to find. It is an ideal at which our British breeders might well aim, to breed such splendid specimens is a magnificent feat. The type of the Wyandottes shown was excellent. Moreover, they possessed plenty of size, without the coarseness which is so often apparent in our exhibition Wyandottes. The White Leghorns were also very good, but they did not appeal to us as did the Wyandottes and Rocks. Chanteclers, a new breed, have no very distinctive characteristics, but we were told they had fine utility qualities, and were well suited to Canadian conditions. All the birds were well shown in large gilded cages, and in spite of the long journey there were no birds in the show in better condition. Mr. Elford and Mr. Rhoades, the Canadian representatives, received many well-deserved congratulations on their exhibits. We would dearly liked to have seen the whole of the Canadian exhibit on view in this country. It would certainly have been appreciated by our breeders, and would have helped to demonstrate that utility fowl can be bred to as high a standard as our best exhibition strains. It is consoling to be able to say that, through the generosity of the Canadian representatives, some of the Barred Rocks will remain in this country, while others will go to Northern Ireland. We understand that one pen of the Wyandottes will go to Scotland, and the other will also remain in this country.

The French exhibit was devoted almost entirely to purely French breeds, such as Bourbonnais, Race de Mantes, Houdans, Coucou de Rennes, Bresse (Black, White, and Grey), Faverolles, Gatinaise, etc. The French do not study the fine points of breeding as we do. Type is not always distinctive. The Bresse were perhaps the best, the Houdans were smaller than ours, the Faverolles gave one the impression that they were exhibited entirely from the utility point of view, and were far inferior to what we are accustomed to see at our shows. We do not wish to belittle the French exhibit. It is simply that we approach the question from a totally different point of view. There was much in it that was interesting, and the breeds exhibited had certainly great possibilities. It is quite possible that in the hands of some of our well-known breeders great improvement in type might be effected, and the breeds become relatively more important and valu-



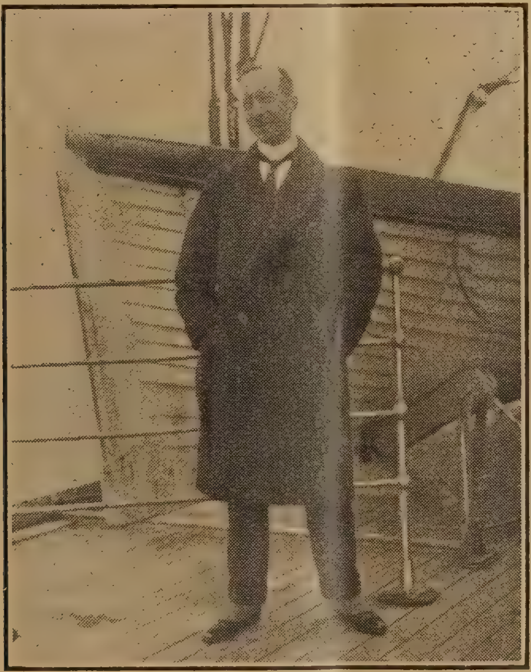
Miss N. H. BELL, Mr. E. J. MEEKINGS, Mrs. DOWDEN Mr. P. H. FOULKES, Mr. TOM NEWMAN.

able. On the other hand, one is forced to admit that there is a possibility that these improvements might only please the eye, and might detract from the utility qualities. The Belgian exhibit comprised some 30 pens of birds, Gold and Silver Campines, three varieties of Malines, Brackels, Brabaconnes, in three varieties, and other varieties which are unknown in this country. There was also a good show of pigeons and rabbits.

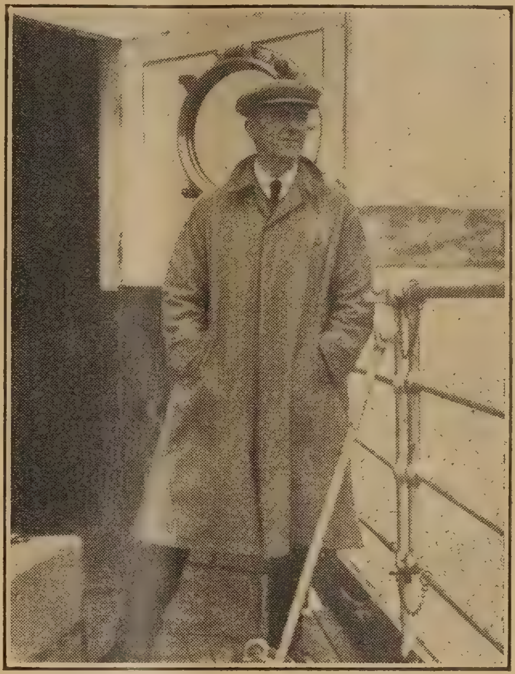
The Spanish section naturally attracted a great deal of interest. It occupied the large annexe to the main hall. The first effect was striking, the flowers and decorations in themselves being remarkably beautiful. In the art of staging we have much to learn from our hosts. The native breeds were the Castilians, which much resemble the Minorca, and were in some cases mistaken for them. "Prats," in four varieties, not very distinctive in type. The Buff appear the most popular. They are a useful looking fowl, rather bigger than our Leghorns, with large single combs. Sagenas, Paraios, and two or three others, but the purely Spanish breeds are few, and with the exception of the Castilians, not attractive. The Minorcas and Andalusians were exhibited as being of Spanish origin, but perfected in other countries. Foreign breeds were: Houdans, Bresse, Faverolles, Leghorns, Orpingtons, Barred and Buff Rocks, Black and White Wyandottes, etc.

EDUCATIONAL EXHIBITS.

For educational exhibits the palm must be awarded to Italy. It was most instructive and attractive, and one could have spent hours there to advantage. The charts and photographs were an education in themselves, beautifully executed; those relating to sex-linked inheritance were especially interesting. The display of eggs graded, according to size and colour, was beautifully done. Drawings of incubation in all its stages, skeletons of birds, with explanatory notes, specimens of food, skins of birds, feathers, and the method of cleaning and preserving them, with powder puffs and many other things made from feathers and the down. Evidently our Italian friends have a greater idea than we have of the value of the by-products which are too often so much waste on our farms. One would have liked to have purchased the whole of the Italian exhibit, and wafted it to this country.



Mr. STANLEY STREET-PORTER.



Mr. P. A. FRANCIS.

The Czecho-Slovakia exhibit was of a very high standard. There were many models of poultry appliances. The collection of pathological specimen included much that was of interest, and was larger than any other in the show. There were also test tubes, showing the various forms of animal food used for human consumption in the actual process of analysis, so that we were able to draw comparisons with the fowl as a form of flesh food with other animals.

It would have been more correct to have written of the birds on the Canadian stand as an educational exhibit, rather than as we have done with the exhibits of poultry. They were the progeny of birds tested in the record of performance scheme, and a better testimony to the value of the scheme could not be desired. The Canadian stand was one of the most attractive and interesting in the exhibition.

Coming to the British stand, one must say that as an example of individual effort, it reflected the greatest credit on all concerned, and yet one must add that there was a feeling of disappointment that we had not done better, that we must do better, and that we can do so. Not for a moment do we wish to write disparagingly of the stand. On the contrary it was excellent, and it must be remembered that it was an individual effort, and had not the resources of the State behind it, as was the case with other countries We have some reason to be proud of it, but next time we must and we will do better. There was too much criticism by those who had not lifted a finger to help, and who put forward no useful suggestions. Professor Punnett's exhibit of Sex-Linked Inheritance was the most prominent feature, and attracted a great amount of attention. Thanks to the Hon. Florence Amherst, we had a grand display of eggs of most breeds of British poultry, attractively exhibited in cases with the weights of the eggs attached, while around the exhibits were models of the breeds which laid them supplied by the Editors of "Feathered World," who contributed so much to the success of the stand. There was a large demand for "British Poultry," to which we referred in a recent issue. The book was universally appreciated, and we again commend it to our readers, as no poultry library is complete without it, and only a limited edition has been published. It can be obtained from the "Feathered World" Offices, 9 ,Arundel Street, W.C.2.; the price is only 2/6, post free. The Harper-Adams' College sent an interesting set of photographs, diagrams and model houses. The display of illustrations of British Poultry, beautifully framed, was most attractive, and was a unique feature of the exhibition. There was a most interesting exhibit of the females assuming male characteristics by Dr. Crew, while Drs. Plimmer and Rosedale showed how the colour of the egg yolk and the chick is influenced by the lack of the essential colouring matter in the foods. Dr. Orr's diagrams, showing the influence of oils in the ration, were both interesting and instructive.

The United States' delegates contented themselves with charts, indicating the effect of various foods on growth and development, and others illustrating breeding and production.

THE SOCIAL SIDE.

If there has been any criticism of the actual Congress, one can only speak of the social side with heartfelt gratitude to our hosts, and those who did so much to make it a success. On the trip from Newhaven to Dieppe, the delegates were entertained to a sumptuous lunch by the Denton Co., of Newhaven, and to the company we are indebted for the excellent photographs published in this issue. Mr. Dunk, the Company's representative, travelled to Dieppe with us. We were all a little tired on our arrival at Barcelona, after nearly 35 hours' continuous travelling, and appreciated the fact that on the following day we were left to amuse ourselves as we liked. A party of 30 of us went to Sitjes, a beautiful little spot on the Mediterranean. In the evening we were all invited to a reception and soiree by the Royal Pigeon Club of Catalonia, and we spent a most enjoyable time there. On the following day we attended the opening meeting of the Congress at the University, and there was a reception by the Alcade of Barcelona at the Ritz Hotel in the evening. Then there was the grand banquet on Mount Tibidado, the visit to the bull-fight, which most of us desired to see; the departure as hastily as possible of the great majority of those who went from a sight which can only be described as revolting and disgusting, devoid of thrills or excitement, without one redeeming feature, unless it is the nerve of the actual participants, which might be used to better advantage. The curiosity that took us there was soon satisfied, and there were very few of us who did not regret the visit. Barcelona is one of the most beautiful cities in the world, and we saw it at its best on the occasion of the visit of the King and Queen, and the Prince of the Asturias. The streets with the beautiful double avenues of trees, the crowds of excited and happy people, the gay uniforms of the troops, and the glorious sunshine presented a wonderful spectacle, which we all viewed with interest and amusement. In the afternoon we visited the exhibition. Then we found char-a-bancs awaiting us in which, we understood, we were to be taken to the docks, and were to be taken round the port. However, there appeared to be some mistake, as after we had boarded a boat, and were beginning to wonder when we were to start, we were all asked to disembark; re-entered the char-a-bancs, and were wafted to the County Hall of the Province of Catalonia, and were given an official reception, and, much to our surprise we found the Prince of the Asturias awaiting us, seated with the Catalonian magnates. We were welcomed by the Governor of Catalonia, and the Prince then rose, and read a short speech of welcome, which charmed all of us. The likeness of the Prince to our own Prince of Wales is very remarkable, and was much commented on by the English visitors. When the King and Queen visited the British stand, Mrs. Lewer, who with Mr. Lewer had the honour of being presented to their Majesties, told the Queen how much we were all struck with this likeness, a remark which seemed to greatly please Her Majesty.

A most enjoyable afternoon was spent at Aremys-de-Mar, where we were most hospitably entertained by Senor Salvador Castello, at his beautiful home. The whole village was given a holiday in honour of the occasion, and we were all most amused at the curiosity with which we were regarded, particularly the ladies of the party.

On Thursday we had a most wonderful day at Montserrat. We were taken by rail to the monastery, and after visiting the wonderful church, lunched, and then ascended the summit by the funicular railway. The view was wonderful, in spite of the slight mist, but even at that level (4,000 feet) there were no cooling breezes.

On the Friday there was a Grand Gala performance at the Coliseum, given in our honour, which was attended by their Majesties the King and Queen. On the Saturday we left for Madrid. The Monday morning we were shown all over the Royal Palace. Then the party began to break up, and wend its way home by devious paths.

Altogether it was a most enjoyable and pleasant trip, and there was no party which derived more enjoyment from it than the one known as "the yellow peril party." Of course, we got a great deal of fun from the difficulties which we experienced in making ourselves understood. Those who prided themselves on their linguistic abilities, often found themselves hopelessly stranded, and French or "Spanish" made in England, was more easily understood by Britishers than by the French or Spaniards. We found we more easily obtained direction when blue eyes looked into black (not the blue eyes of the mere man) than we did with the polyglot Spanish. It was wonderful what those blue eyes did for us, but the fact remains that two pairs of blue eyes failed us entirely once, when in search of bananas, after long and elaborate gesticulation, and much broken Spanish, they were offered a long meat sausage. All parties suffer from the "camera fiend," more or less. This involves long delays, the stopping of the car to "snap" a bullock waggon, or the rushing after some Moorish-looking individual, seated on the extreme end of a donkey, which is also burdened with panniers, containing either water bottles, vegetables, or charcoal; the "snapping" of the groups of women at the communal washing places in the villages, etc., etc., etc. We all, more or less, accumulated a collection of rubbish, a habit peculiar to visitors abroad. Thus one found oneself carrying a pair of sandals, a cow bell, a baby's bonnet, a fan, or a collection of weeds, which were supposed to be typical of the flora of Spain, and numerous other articles, with which we were loaded, preceded by the irresistible request, "would you mind?" Generally one carries a camera for the purpose of taking photos, but the one we carried for a lady the whole of one day was intended for another purpose, as it certainly took no photos. Shopping presented certain difficulties, but one must confess that the fair sex have been libelled—that a man takes longer to buy a fan and a couple of ties than all the women in the world—that is our experience, acquired in Spain, after much patient waiting on the pavement. There were souvenir hunters, of course, collecting anything from a toothpick to the menu card, or the key of the room at their hotel. There was also one noticeable fact, that on the whole trip we saw only three Panama hats. Apparently the Spaniards do not affect them even in their hot sunshine, for these were all imported.

One cannot conclude without a word of thanks to Mrs. Rawson, for the splendid arrangements made for the comfort of the party on this side. The trip was very far from a holiday for her, and for any little mishaps which occurred, or any disarrangement, she was in no way responsible. After all these were trivial matters, unavoidable with a large party travelling abroad. Mrs. Rawson was pestered with questions, and all those who had complaints, real or fancied, made their way to her. She was always most helpful, kind and courteous, and we are all deeply grateful to her.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 2s. 6d. for a reply through "EGGS," and 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

If the post-mortem indicates that the disease is contagious or infectious, a reply will be sent by post, and the full fee charged.

REPLIES BY POST.

Replies by post can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

R. G. W. (Auchterarder). A good dry mash for laying stock would be: 2lbs. broad bran, 4lbs. fine white middlings, 1lb. each maize meal and Sussex ground oats, ½lb. dried yeast, and ½lb. meat and bone meal. This should always be before the birds in hoppers. If you replace one part of the bran with alfalfa meal, this would also make an excellent wet mash. For a breeder's mash (dry) I do not think you can beat the following (parts are by weight): Three parts broad wheat bran, four middlings, two maize meal, one Sussex ground oats, half crushed linseed, half dried yeast, one fish meal, and one alfalfa meal. The same mash might be used wet if you reduce the bran to two parts and increase the alfalfa to two.

G. R. M. (Tintern). The sample of limestone grit you send is quite a satisfactory one, and if you can buy it at 2s. per cwt., and save carriage, I would advise you to do so. I cannot get you an analysis, as this would cost half-a-guinea or more, but it appears to contain a high percentage of carbonate of lime. You might get your county analyst to analyse it for you. If the hens fought for the oyster shell it is obvious they were in need of it. Possibly the supply had not been adequate.

J. H. R. (Yorks). The sample of rice meal you send contains a very high percentage of rice husk. I do not consider it at all good, and would not advise you to use it.

C. M. (Scotland). You say that by an oversight no quilts were put in the incubator during the last hatch when the eggs were inserted. On the third or fourth day the mistake was discovered, and the quilts inserted. On the 19th day, when you went to take out one quilt, you found that by excess of zeal three quilts had been put in instead of two in the incubator. Thinking the chicks might have suffered from lack of air you took all three out. Thus there were no quilts for three days, three quilts for sixteen days, and none at the end, and yet in spite of this you had 91 chicks out of 96 eggs, and you ask why, under these peculiar circumstances, was the hatch so satisfactory? One can only say that the germs were very strong, and that nothing actually occurred within the incubator which had any bad effect upon them. I mean that there was not an inadequate amount of oxygen or an excess of carbon-dioxide. As you removed all the quilts on the nineteenth day that permitted an adequate supply of oxygen. That is the only explanation I can offer. There is really nothing which would have caused a bad hatch.

P. C. (Derby). Dried yeast is of value because of its tonic properties. It is a good appetiser, assists in the assimilation of other foods, and its protein is of high value. It is also rich in the vitamin "B." In answer to your question as to whether "B" vitamins are good for poultry. They are a necessity. You are only likely to get more eggs if you use it, because of the generally improved health of the birds. We have no real evidence that it does set up fermentation in the mash. On the contrary some experiments conducted have demonstrated that it does not cause fermentation. It is advisable never to exceed 5 per cent in the mash.

B. M. (Highfield). I am pleased to hear that you have had successful results with your laying stock when using the Wellingham "C" mash, and that the birds are in wonderfully good health. We do not propose to change the mash during the summer months. I can see no reason for doing so, and we want to continue the experiments for the full twelve months. A good formula, using soya meal, for your young stock at three months old would be: 3lbs. bran, 5lbs. fine white middlings, 1lb. maize meal, 1lb. ground oats, ½lb. soya bean meal. If the birds are not on free range, add ½lb. meat and bone meal. I am interested to know you have used soya as a substitute for half the quantity of fish meal, in the mash for your ducks, and that the results have been satisfactory. I do not think there is any "glut" period when the price of the soya bean meal would drop, so that you could store a quantity.

C. M. (Scotland). You cannot allow the hens to run among your currant bushes when once the fruit is formed. They would be sure to eat large quantities.

J. T. L. (Longton). With regard to blood spots in eggs. This is a very common complaint during the flush season, when the ovary is plentifully supplied with blood to permit the rapid formation of yolks. As a follicle ruptures to release a yolk some blood may escape from a congested blood vessel of the follicle, blood pases into the oviduct with the yolk, and there it becomes surrounded by albumen, and is incorporated in the eggs. I am afraid there is very little you can do, or practically nothing, to help matters. Avoid all stimulating feeding, and give the birds a mild dose of Epsom salts. You need not fear, it is not a hereditary proposition.

"Ulster Reader" (Ulster). Buttermilk is of very great value for chicks. You should make good use of it either by giving it them to drink or mixing the mash with it, if you are using a wet mash. In that case I would not use any animal food, such a fish or meat meal. The samples of middlings and bran you send are both quite good, and good value at the money. The bran is a little rough, but is above the average on the market.

H. E. K. (Baslow). I am afraid I cannot assist you as to the cause of the death of the ducklings. The diarrhoea does not seem to be attributable to the feeding. You say you think it is contagious, and the loss has been very heavy. In such cases you should immediately send to Capt. Leeney, and have a post-mortem examination made. I cannot say that the Aylesbury brought the disease. I have not the remotest idea of what is the cause, and I cannot tell you what to do to check it unless I do know. It would be far better to write to Capt. Leeney, as per instructions at the head of this column. There are very few good laying ducks which lay nice-size green eggs. All the efforts of breeders have been devoted to producing laying ducks which lay white eggs, and I do not think you could get one which would prove a really good, reliable layer.

G. T. (Burnham). The sharps are not good enough. They are not what we know as "middlings," being much coarser, and containing less of the flour. The bran is a good sample, but the ground oats appear to contain a percentage of barley, and very coarsely-ground, they are not "Sussex" ground.

H. B. (Somerton). It is certainly remarkable that the Light Sussex chicks hatched on December 29th should lay on the 29th April, when exactly four months old. It is not a record for heavy breeds, as we had a Light Sussex pullet in the Wellingham experiments last year which laid at fourteen weeks and four days old, but it is very remarkable development, and shows the advantage of early hatching. With regard to your breeding from them in 1925—it is too early yet. If the pullets develop well, then there would be no objection, but it is possible that this early production may result in their being stunted in growth. Feed them as well as you possibly can at the present time, so that there will be enough for production and development. As you are feeding on my formula it cannot be described as too stimulating.

B. B. (Rickmansworth). Cuckoo Leghorns have not been bred for heavy egg production, and I should be inclined to say that the Silver Campine was the better layer. Cuckoo Leghorns mated to Black Leghorn cock would give a sex-linked cross for egg production, but I cannot say that it would result in prolific layers. I cannot think it is economical to kill cockerels when hatched. Pullets that are a cross between Light and Heavy breeds vary very much with regard to broodiness; some of them are inclined to favour the Light non-broody parent, while others will be just as broody as their very broody parents. I am sorry I cannot tell you how to make a nest so that the eggs will roll away as soon as they are laid.

K. R. G. (Chippenham). In reply to your letter. It is certainly not necessary to feed three months old pullets four times a day; three times will be ample. One good feed of wet mash and two of grain would be sufficient. I cannot tell you how many ounces they should have a day—that is a matter of observation. See that they are satisfied, and have not too much. If they leave any you must reduce the quantity next time. The sample of Sussex ground oats you send is a very good one; the sharps are hardly good enough, they contain too much bran and too little flour. The broad bran is a poor sample, merely ordinary bran passed through the rollers twice and flattened out. The meat meal and maize meal are both good. The clipped oats are a nice sample, and the same remark applies to the maize grits. The wheat is also good The samples of foods you are using are, on the whole, much above the average. The meat meal is worth about 20s. cwt. delivered.

POST-MORTEMS.

M. H., Honiton. The symptoms of diarrhoea were not the result of B.W.D. or other infectious disease, but of indigestion. I presume that the diet of "rice and chalk" was given as treatment, and not as a suitable ration! Your letter would leave one to suppose the latter. The crop was absolutely empty, but the gizzard contained some finely broken maize, and a good deal of fibre, as if the bird had eaten chaff bedding or short grass stems. You would do well to follow Mr. Newman's formulae.

Dorset. Ruptured oviduct was the cause in this case.

A. J., Chester. The chick had an infectious disease of the lungs. Treatment when once affected is of no avail, but the others may be somewhat fortified against the malady by giving forty grains of ammonio-citrate of iron in each gallon of drinking water, allowing no other.

J. F. H. S. The chick had a disease of the kidneys; all the tubes being blocked with solid urea. Some dietetic cause I should suspect. There is no word of information in your letter as to rations.

Amateur. One had ulcers on the liver, and the other an area of peritonitis caused by a shrunken and hard yolk sac, acting as a foreign body. They appear to me to be feeble in constitution. Certainly I did not find any infectious disease.

"Old Fogey." These three-weeks-old chicks had the secondary lesions of coccidiosis or turkey liver disease, showing plainly in their livers, as lighter-coloured yellow circles, and not merely on the surface, but throughout the substance. The caeca or blind guts were much inflamed, showing a purple colour, and filled with the inflammatory products which this year are of a more acute kind than in the past 30 years. This accounts for the early involvement of the liver. In other seasons it was a relatively mild infection, and a cheesey deposit slowly formed, and was more or less tolerated by the young chick. No better treatment has been so far discovered than catechu, which fortunately seems to act more quickly on the acute form than on the sub-acute or cheesey, due no doubt, to the greater penetrability of the bloody matter.

N. J. The White Leghorn pullet was the subject of acute tuberculosis, the liver being specially bad.

Perplexed. One of the chicks had hay-band disease, as I have named the condition when grass stems or other fibrous material has twisted into a rope and paralysed the proventriculus and gizzard, or formed similarly in the large intestine. The next examined had such a rope forming. All had pneumonia in varying degree. Though not having the typical tubercles of brooder pneumonia, it is probably infectious, and should be regarded as such. Sanitation and tonics advised. The administration of citrate of iron and quinine has given good results in many cases. About forty grains to each gallon of drinking water is a convenient method.

J. B. The hen had fatty degeneration of the heart and liver. The former failed suddenly.

P. J., Cranleigh. There appears to be a vitamin deficiency, and already marked effects of rickets. Evidence of indigestion, but none of infectious disease in these chicks. Professor Saunders, late of the Toronto University, assisted at the autopsy, and agrees with this verdict. We think you should get benefit from lime water mixed with the food at one part of the day, and cod liver oil at another (not mixing them).

Hard Luck. No, not poisoning, but a broken collapsed egg in the uterus with inflammation following.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

DISEASES OF POULTRY.

By Capt. LEENEY, M.R.C.V., M.S.A., A.P.S.

HEREDITARY DISEASES.

The older generation of readers will recollect the time when it was the fashion to attach an excessive importance to heredity.

Everything was hereditary, or there was a tendency to heredity, and countless examples were given; as in the gait or walk of father and son, and the carrying of one shoulder higher than the other, or a stoop, tone of voice, etc. It was true to a much greater extent than is now accepted; the pendulum having swung to the opposite extreme. The controversy was believed by the new school to have been settled when tuberculosis was found by Koch to be caused by a specific organism which was not in the new-born calf, and, therefore, not hereditary. Calves were taken to a distance as soon as dropped, and reared in surroundings believed to be tubercle free, and on this evidence the belief in heredity was abandoned by those who would be considered progressive.

The fact that consumption continued to occur in successive generations of men and beasts in particular families was an awkward one to dispose of, but the new pathologists satisfied themselves, if not the parents of children with lily and rose complexions who became "infected" at about the age of puberty, as other members of the family had done when such evidence was accepted proof of heredity. The concession is now made to such old-fashioned prejudice by admitting a special susceptibility on the part of the beautiful skinned young people, in whom we thought we could diagnose heredity in one of them walking on the other side of the road.

This is a long preamble, but is written by one with a long retrospect, and opportunities for observation. One cannot be sure whether the tubercle bacilli do or do not lurk in some portion of the calf or the hen, although the organs most likely to be affected fail to yield them up to the research worker.

There is abundant evidence of the infectivity of tuberculosis in our flocks, and it amounts to the same thing, if there is such a predisposition to infection that a bird or beast cannot live in the ordinary environment without contracting the disease. It may not be scientifically correct to say that the germ is inherited, but the results are the same.

An immense amount of experimental work is needed to enable us to combat poultry diseases with any hope of success. True, there is much being done, particularly in America, but results are infinitely slow in coming to the poultrymen who cry for immediate relief in their own time, and perhaps concern themselves less with posterity. The need of something here and now, leads to easy victimisation by quacks who promise all sorts of impossibilities and the destruction of disease germs inside the bird or animal by preparations so harmless that the green fly of plants will take a swim in them twice daily, and appear to be refreshed. Such at least is my own experience. The promise of a germ killer, if Killum's never-failing germicide is mixed with food of fowls is most attractive. It is, indeed the direction in which we look, and the goal we hope for. Can it be attained?

This question has come to me with added force after a long interview with Mr. Desholmes, who was in charge of the Laboratory at Swaythling while I was serving there, for I have never met with one more deeply versed in research work, and indifferent to rewards. He referred to different authorities, who stated that fowls were practically immune to arsenic. I cannot quite accept that without giving experimental doses, because Ward and Gallagher give five grains as the lethal dose, or from one to three grains as "non-toxic" after making a few experiments. We may take it that it is quite established that a fowl will tolerate a dose of arsenic that would certainly kill a man weighing forty or fifty times as much. This gives us a starting point from which to make observations on fowls with tuberculosis, coccidiosis, B.W.D. roup, and other well-known infectious diseases. Can we kill these pathogenic organisms in the living bird without destroying the host? Are the bacilli or the oöcysts in the blood, or if so will our solutions of arsenic or other poisons, tolerated by the fowl, reach and destroy them, or at least inhibit or sterilise them? We do know that the germs of coccidoisis will remain in the ovarium of the recovered pullet, and we have seen thousands of chicken under a week old with lesions in the caeca that could not have attained to such development in the few days of their lives ex ovo. They must have been growing during the embryonic stage in the shell. I should have asserted this off my own bat, and from my own observations, but it is confirmed by better pathologists, with greater facilities for research. The next point that arises is this, would the accumulation of arsenic within the hen cause the death, say, of coccidia in the ovarium, as well as those presumably free and circulating in the blood vessels? If this desirable end could be attained, would there be other objections? What about the flesh of an arsenicated fowl if eaten by human beings? Toxicologists tell us that arsenic does not remain in the musculature or flesh, but as many criminals have learned, to their undoing, it lays up in the bones. I put these matters before your Scientific Association, Mr. Editor, as questions, rather than in the attempt to give information on a subject upon which I am so ill-informed myself. Can we get so-called saturation with safety? Enough has perhaps been said to show what a very important line of research might be undertaken. If we could destroy disease germs in the pullet we could get absolutely clean flocks.

There are many estimable people to whom the word vivisection is as a red rag to a bull, but they do not know that any experimental dose is a contravention of the Anti-Vivisection Acts; but if given in the belief of its curative effect, it is not a misdemeanour, however much suffering it may inflict. If Mr. Bumble were still living, he would have no occasion to revise his views as to the "law." Who will obtain a license and conduct some experiments in the direction indicated?

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

CORRESPONDENCE.

On my return from Barcelona, I found literally a sack full of letters awaiting me, which I am dealing with as fast as I possibly can. Will you please forgive the delay and be as patient as possible? It is the first real holiday I have had since the S.P.B.A. came into being, and during all these years there has never before been a single day in which I have not answered some letters, or dealt with some business connected with our association. It has been a real holiday, and I have most thoroughly enjoyed it, and I am sure, under the circumstances, you will be lenient with me, and accept my assurance that all correspondence is being dealt with as quickly as possible.

DOGS AND FOWLS.

A case of great importance to poultry-keepers was heard at the Leek County Court last month. The plaintiffs were four farmers, who claimed damages for loss sustained by their fowls being killed by an Airedale terrier belonging to a Mr. Dobson. The defendant, according to the account of the proceedings published in the "Leek County Post," does not appear to have disputed the fact that his dog did kill the plaintiff's fowls, but, as defence, relied on the Dog's Act, which does not include poultry, while his solicitor submitted that there was no proof that the defendant had had previous knowledge of the dog's evil propensities.

His Honor said that an action of this kind had been brought, and failed on the ground that, although damage was done, plaintiffs were unable to prove that the owner knew that the dog was vicious. Though his sympathies were with the plaintiffs, he was obliged to find for the defendant, because it had not been proved that he knew the dog was of a dangerous nature.

Well might Mr. Bumble say "the law's a hass."

GOATS AND THE POULTRY FARM.

In Barcelona we were very much amused and interested in the herds of goats which were driven through the streets in the early morning to supply the city with milk. We would see a herd of some thirty goats at the corner of a street being milked while the natives arrived with their cans and jugs, and bought whatever quantity they required. The population of Barcelona is something over 1,000,000, and it is claimed to be the most beautiful city in Europe. Just fancy such a scene in one of our big cities. No need for adulteration acts here, for you had it straight from Nanny while you waited, and it was surprising the quantity of milk she gave. Knowing nothing about goats I cannot say what particular variety they were. Perhaps my friend, Major Eden, who is an authority, may be able to supply the information. What an asset such a herd would be on a large commercial egg farm. It would be the best solution of the problem of the high cost of dried milk. I once kept a goat, but the memory is not a pleasant one, and before I try again will learn a little more about them, and I will keep a herd next time, not an individual, then they can entertain each other.

EGG-LAYING TEST.

GLOUCESTERSHIRE REPORT FOR SEVENTH MONTH.

A FAVOURABLE PRODUCTION PERIOD.

During the past month the weather has favoured egg production; 5.976 pullets' eggs have been collected against 5,175 the previous month, giving a total of 30,273 eggs for the seven months and an average of 99.5 per bird. A third death has to be recorded (Section A.—H.B.), otherwise the general health of the flock is good. It is worthy of notice that Major Dugdale's W.L. (Section 1) and L.S. (Section 5), Single Bird Section, have made the exceptional record of 162 and 172 eggs respectively in 196 days.

Individual bird records may be obtained upon direct application to the Manager.

SECTION A.—LIGHT BREED (Professional).

(Five birds constitute a Pen.)

Owner.	Pts. Awarded.
Maj. J. G. Dugdale	2785
G. B. Metcalfe	2734
Hinton P.F.	2585
J. L. Brown	2501
H. T. Godber	2473
Coaley P.F., Ltd.	2427

All White Leghorns.

SECTION A.—HEAVY BREED (Professional).

T. L. Davies (W.W.)	2655
P. S. Beales (W.W.)	2650
H. W. Fowles (W.W.)	2555
W. R. Partridge (W.W.)	2511
*P. M. Hinton (W.W.)	2423
G. B. Metcalfe (R.I.R.)	2352

* Denotes one death.

SECTION B.—LIGHT BREED.

(Confined to owners of not more than 50 laying head.)

Mrs. S. A. Brown	2242
J. A. Hall	2042
*Mrs. D. Japp (B.L.)	1829
J. D. Crewdson	1744
K. Wilson	1740

All White Leghorns except position *.

SECTION B.—HEAVY BREED.

(Confined to owners of not more than 50 laying head.)

L. Grist (W.W.)	2543
Maisemore School (W.W.)	2453
Miss M. Lawrence (R.I.R.)	1828
C. G. Young (R.I.R.)	1690

SINGLE PEN SECTION.

SECTION 1.—WHITE LEGHORNS.

Owner.	Pts. Awarded.
Major J. Dugdale	722
Misses Ransford (12)	643
L. Grist	586
Misses Ransford (2)	575
J. E. Boyd	534
Sherborne Park P.F. (8)	506

SECTION 2.—WHITE WYANDOTTE.

W. R. Partridge (18)	700
Philip Clapham	686
Lord Sherborne	664
W. R. Partridge (23)	634
Miss H. Baylis	629
W. O. Garbutt (21)	617

SECTION 3.—RHODE ISLAND RED.

F. W. Clifford	656
Miss H. Reed	608
A. Daunton (32)	532
Miss M. Lawrence	533
A. Daunton (44)	525
J. N. Horne	477

SECTION 4.—A.O.V. LIGHT BREED.

Owner and Breed.	Pts. Awarded.
G. B. Metcalfe (B.L.)	628
H. S. Hitch (Ancona)	553
A. Daunton (Ancona)	514
H. Lynden Lemon (B. La Bresse)	511
L. Grist (Ancona)	411
M. A. Greenway (B.L.)	406

SECTION 5.—A.O.V. HEAVY BREED.

Maj. J. G. Dugdale (L.S.)	763
J L. Brown (L.S.)	598
Mrs. E. Weinholt (Aus. Orp.)	572
Miss M. Lawrence (B'Veld.)	547
F. R. Welch (L.S.)	504
Miss H. Reed (L.S.)	483

SECTION 6.—DUCKS.

Owner and Breed.	Test Score.
Mrs. A. Japp (W.R.)	144
Maj. J. G. Dugdale (K.C.)	126
Mrs. E. Weinholt (K.C.)	120
W. R. Partridge (8) (W.R.)	118
W. R. Partridge (10) (W.R.)	113
Sherborne Park P.F. (W.R.)	107

PEN DUCK SECTION.

(Four ducks to the pen.)

Report for the sixth month ended April 4th, 1924.

Major J. G. Dugdale (K.C.)	434
Bradley Agric. School (K.C.)	406
G. H. H. Simmons (K.C.)	323
D. C. Herbert (K.C.)	321
W. R. Partridge (W.R.)	319
Sherborne Park P.F. (W.R.)	306

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Some Fruit Growing Notes to Help Poultry Keepers.

By F W. WHEELER, F.R.H.S.

FRUIT AND BEES.—When squaring up my roughed-out ideas for this week's notes I noticed in "Eggs," for May 14th, an article on "Beginning with Bees." A strange coincident, as it is a subject which I do not think has been dealt with lately in "Eggs," and my idea of referring to these valuable little friends of the fruit-grower comes curiously at the same time.

I have not the slightest intention of writing on Bee-keeping, which must be left for the expert, although I do keep a few hives in my orchards because of the great value of bees in helping fertilisation of fruit blossom, thus giving increased crops both in the "small fruit" as well as with the other fruit trees.

I likewise think that one is well repaid by bigger crops for their labour in looking after them irrespective of the honey that should be taken from the hives and which is a very acceptable "extra," and a fairly sure one, unless the bees are left to look after themselves.

Some poultry-keepers have them as a side-line, and if you have a nice lot of fruit trees, then such a neighbour is most desirable.

Bees kept on a small scale do not give a lot of work, but it is silly to think that they do not require much attention. Certainly in the winter months we let the hives almost alone and merely see to the preparation of articles and sundries that will be required in the spring and summer; but when the warm weather comes (as it is now while I am writing this) one must be continually on the watch, not merely for swarms, but also keep close observation over the internal working of the hives, or you can easily fail to catch the full advantages of the honey flow.

Now, as I am more concerned with the Bees in relation to fruit trees, my chief idea in writing about them to-day is to refer to the question of how far Bees are injured through spraying operations.

When an arsenate of lead solution has been used it is contended that bee-keepers have suffered heavily from losses, and consequently the fruit-grower has also indirectly suffered by there being less fertilisation of the fruit blossoms.

To such an extent is this so, we find that the Ministry of Agriculture have referred to it in a leaflet on spraying with arsenate of lead, and they also send out a circular of warning, asking fruit-growers not to use this particular spray while fruit trees are actually in open blossom, and they draw attention to the point that it is considered to be equally effective if the spraying is done immediately before the blossom buds open, and again immediately after the petals have fallen.

With apples it is considered more especially to be beneficial if the application is made during the earlier period, and with better results than at any subsequent time.

When we consider this warning as to certain spraying, and its effects on bees, one cannot help being greatly impressed by reading that experiments have been carried on over the water which there have not confirmed the conclusions arrived at with us.

Whether there can possibly be any difference in the bees, I cannot say. We know the Italian bees seem to be less likely to be attacked by the dreaded I.O.W. disease, which did so much damage amongst the black English bee not many years back, and as a result of which Italian queen bees are now being introduced into so many hives.

Still, as a matter of interest, I should like to give a reprint taken from the "Wiscousin Bee-Keeper" on "Bees v. Spraying":—

"In 1919 and 1920 Prof. R. W. Doane conducted several experiments. He enclosed trees with gauze cages, inside each of these he placed a colony of bees and then sprayed the trees. He found that the bees visited the blossoms freely and indicates that all but a few returned to the hives. At the end of the second day after spraying the colonies were returned to the apiary where they belonged.

None of the colonies showed signs of serious poison effects, and continued a normal development in the apiary.

A second set of experiments was conducted by placing bees under or near trees in the open and without the gauze cages. A number of trees were sprayed with arsenate of lead, and the bees watched to see if any signs of poisoning occurred. He found the bees visiting the blossoms, but could find no indication that even a few of the bees were poisoned."

Although from all this we can gather that there is a little uncertainty as to positive harm; we can at least avoid risk of causing losses to our neighbours' bees if we spray at the periods of blossoming that are recommended, and probably find it would be a mutual advantage.

MALPAS UTILITY POULTRY CLUB.

Sixth Report—Twelve Months' Laying Trials. From November 1st, 1923.

Practically all birds are now laying well, and we may take it that we have now reached the maximum production.

There has been a slight reshuffle for the leading places in some sections, however, this is inevitable when two or three eggs separate the leading birds.

High bird No. 172 still holds on to her position, having produced 26 eggs in 28 days. If this pullet can hold out until the finish of the trials she looks like making a remarkable score; her score for the six months is now 152.

We have had one death, No. 163. Cause of death enteritis. With this exception the health of the birds is perfect.

EGG PRODUCTION OF LEADING BIRDS.

Position.	Owner.	Eggs Laid Sixth month.	Score Value to date.
	White Leghorns.		
1.	Mr. Warwick Rogers	14	126
2.	Mr. C. L. Crosse	20	114
3.	Mrs. Campbell-Muir	22	110
4.	Mr. A. Snowden	16	109
4.	Mr. Warwick Rogers	19	109
5.	Mr. J. Ball	20	101
	A.O.V. Light.		
1.	Capt. and Mrs. Jarmay	18	110
2.	Capt. and Mrs. Jarmay	16	102
2.	Mrs. Probin	17	102
3.	Mr. E. Bowles	17	95
4.	Mrs. T. Mercer	19	92
5.	Mrs. Probin	18	86
6.	Capt. C. W. Shepard	15	84
6.	Capt. and Mrs. Gillespie	12	84
	White Wyandottes.		
1.	Mr. W. H. Robinson	23	117
2.	Duke of Westminster	23	116
3.	Mr. T. H. Kemp	23	113
3.	Mr. T. H. Kemp	21	113
4.	Mrs. Brereton	18	112
5.	Mr. G. Shenton	18	109
6.	Mr. G. Walley	22	108
	A.O.V. Heavy.		
1.	Mr. E. N. Paterson	26	152
2.	Mrs. Maples	24	133
3.	Mr. H. H. Lloyd	23	128
4.	Mr. H. H. Lloyd	19	112
4.	Mr. A. Dickinson	20	112
4.	Mr. E. K. Bellis	22	112

(Signed) A. WHITE.

HARPER-ADAMS' AGRICULTURAL COLLEGE, NEWPORT, SALOP.

POULTRY LAYING TRIAL, 1923-24.

REPORT FOR THE SIXTH PERIOD.

The sixth period ended on April 16th. The gradual increase in egg production has been maintained, the average per pen of six birds for the 28 days being 119 eggs, compared with 104 eggs for the previous period. The leading position over the whole of the trials at the end of the half-year is held by a Light Sussex pen (No. 163) with the excellent record of 740 eggs, value £6 19s. 3d.

The following is a summary of the leading pens in each section:—

SUMMARY OF LEADING PENS.

SECTION 1.—WHITE LEGHORNS.

Pos.	Name and Address of Owner.	Eggs.
1.	H. Smith, near Sheffield	667
2.	Major W. Wilson, Longparish, Hants	659
3.	J. L. Brown, Bristol	643

SECTION 2.—WHITE WYANDOTTES.

Pos.	Name and Address of Owner.	Eggs.
1.	Mrs. Alec Wilson, Garth, Breconshire	676
2.	J. and W. Purdie, Lanark	666
3.	The Misses D. and M. Keech, Market Harboro'	644

SECTION 3.—RHODE ISLAND REDS.

Pos.	Name and Address of Owner.	Eggs.
1.	F. and A. H. Sanders, Lutterworth, near Rugby	672
2.	G. W. Reeves, Whitchurch, Salop	622
3.	R. Midwood, near Rugby	595

SECTION 4.—SUSSEX.

1.	Col. A. Dugdale, C.M.G., D.S.O., Glos.	740
2.	Mrs. Alistair Robertson, Storrington	687
3.	W. H. Golden, Leire, Rugby	652

SECTION 5.—ROCKS.

1.	F. R. Welch, Bewdley, Worcs.	676
2.	Capt. A. A. Plimpton, East York.	669
3.	L. A. W. Wright, Loxley, Warwick	608

SECTION 6.—BARNEVELDERS.

1.	W. R. Partridge, Cirencester	505
2.	Miss C. E. Roads, Bletchley, Bucks	480
3.	The Velderbresse Poultry Farm, W. Yorks	451

SECTION 7.—BLACK LEGHORNS.

1.	Frank Snowden, Keighley, Yorks	623
2.	G. B. Metcalfe, Lechlade, Glos.	571
3.	J. H. Hodkinson, near St. Ives, Hunts	562

SECTION 8.—LA BRESSE.

1.	H. Durrant, Sussex	566
2.	Mrs. Hines, Winchester	585
3.	R. Charles Hall, Coulsdon, Surrey	513

SECTION 9.—ANCONAS.

1.	W. Hamnett, Blackpool	552
2.	F. E. Derham, Hilton, Derbyshire	472
3.	G. B. Metcalfe, Lechlade	440

SECTION 10.—COLUMBIAN WYANDOTTES.

1.	S. J. Shepherd, near Bridgnorth, Salop	570
2.	L. H. Wace, Bridport	520
3.	L. H. Wace, Bridport	512

SECTION 11.—ANY OTHER VARIETY.

1.	H. B. Howe (Black Minorcas), near Leicester	587
2.	The Ryhall Mill P.F. (Brown Buttercups), Lincs	508
3.	Longworth Bros. (Buff Orpingtons), Rawtonstall	503

EXHIBITION SECTION.

1.	A. Howard (Light Sussex), Maidenhead	670
2.	W. Hamnett (Buff Rocks), Blackpool	661
3.	Ouse Manor Farms (Golden Barred Rocks), Beds.	630

SINGLE PEN TEST.

SECTION 1.—WHITE LEGHORNS.

1.	Miss H. Baylis, Stratford-on-Avon	130
2.	S. Street-Porter, Isle of Ely, Cambs.	127
3.	Allen Bros., Harrogate	128

SECTION 2.—WHITE WYANDOTTES.

1.	C. W. Shepard, Malpas, Cheshire	132
2.	E. Clough, near Lyme Regis	139
3.	B. Threlfall, Churchtown, Southport	127

SECTION 3.—ANY OTHER LIGHT BREED.

1.	C. W. Shepard (Black Leghorn), Malpas, Chesire	123
2.	B. Robinson (Black Leghorn), Spilsby	110
3.	G. B. Metcalfe (Black Leghorn), Lechlade	108

SECTION 4.—ANY OTHER HEAVY BREED.

1.	B. Robinson (R.I.R.), Spilsby	134
2.	W. M. Golden (Light Sussex), Leire, Rugby	122
3.	Misses D. and H. Koech (L.S.), Market Harboro	121

CO-OPERATIVE POULTRY PRODUCTS, LIMITED.

Readers who are interested in Mr. S. G. Hanson's scheme, which has for its object the remedying of the unsatisfactory prices received hitherto for surplus cockerels, etc., will be gratified to know that a company has been registered under the title of Co-operative Poultry Products, Limited, and is affiliated to the Agricultural Organisation Society.

A site has been acquired by the purchase of a farm at Virginia Water, Surrey, within 21 miles of London.

Briefly the proposals of the company are as under:

> Members will send in surplus birds and other stock to the station, by arrangement with the Manager.
>
> An initial payment will be made not exceeding the price previously received for the same class and weight of bird, due note being made of the time of disposal. This price can always be amicably arranged with the Manager of the station before actual despatch.
>
> Payment will be on a fortnightly or monthly basis in agreement with the Manager.
>
> It is intended to employ experienced Sussex fatteners, and tests will be made of the relative methods of English and American systems, which differ considerably.
>
> The killers employed will be drawn from experts engaged by larger establishments which specialise in the finished product.
>
> By-product conversion will include the making of:—
>
> Chicken Essence (Extract).
> Chicken Breasts in aspic jelly.
> Chicken Paste and other prepared commodities.
> Chicken Livers.
> Feather Grading and Marketing.
> Manure.
>
> Though the minimum weight cannot as yet be definitely fixed, it is suggested that nothing less than a 12oz. bird can be sent for disposal.
>
> With more than 250,000 birds already offered, it will be necessary to ration supplies during the early operation of the station. This will be arranged by the Manager with the senders of supplies.
>
> The Manager will endeavour to arrange for collective sending on named dates with the railway companies (or road transport), on special terms, for members living in areas which show sufficient supplies to warrant this step.
>
> Individual consignments should be as large as possible, in order to reduce carriage and other charges per head of birds.
>
> Capital will not be available for the free provision of crates. If necessary these will be provided at not more than the usual charge made for same by the commission agent.
>
> As soon as the promised capital is available, steps will be taken to complete the purchase of the station, and to provide the necessary equipment. It is estimated the scheme will be in operation from one month to six weeks thereafter.

Copies of the prospectus can be obtained from:—
Mr. Edmund Scholes, Leysbourne, Campden, Glos.
(Prov. Secretary).

Modern Poultry Feeding.

By TOM NEWMAN.

THE WELLINGHAM EXPERIMENTS.

We have now completed the 11th week of these experiments, and it is notable for the wonderful gain made by the chicks in the third experiment, which have now taken a decided lead, with an average weight of 2lbs. 7.52ozs. per bird, and a gain on the week of 7.36ozs. This approaches some of the wonderful results obtained in the last year's experiments, when the 4th pen gained 8.108ozs. in the 11th week, and finished up with an average weight of 2lbs. 10½ozs. But this pen received 33 per cent. dried milk, while this year we have to be content with 5 per cent. However, one must not attach too much importance to these experiments for reasons already given, and I will content myself now with giving the full results to date:—

FIRST SERIES.

30 Light Sussex, hatched February 29th, in each experiment.

No. 1. 11th Week (May 16th): Average weight, 2lbs. 4.56ozs.; Average gain, 4.0383ozs.

No. 2. 11th Week (May 16th): Average weight, 2lbs. 4.32ozs.; Average gain, 5.32ozs.

No. 3. 11th Week (May 16th): Average weight, 2lbs. 7.52ozs.; Average gain, 7.36ozs.

Replying to a correspondent in a recent issue of "Eggs" as to the value of Locust Meal, I made a mistake, to which Mr. J. N. Leigh has kindly drawn my attention, and which I hasten to correct with due apologies. I said that Locust Meal had little value as a poultry food. This is quite wrong. When I replied I had locust bean meal in my mind. This is an entirely different proposition; locust meal has a great value as a poultry food, being equal to fish or meat meal; its protein has a high value. I make no excuse for the mistake, except that I was working under high pressure, preparing for the trip to Barcelona, and the question was answered rather hurriedly.

One does not hear the advice given so freely a few years ago by certain writers who had got the idea from their grandfathers, when the birds' ration generally consisted of barley meal, potatoes and whole maize, to avoid overfeeding. This advice was given years after the cause had ceased to exist, and did a lot of mischief, as many heavy layers were seriously underfed, and even up to three years ago, I had very frequently to advise correspondents that their laying stock were only on half rations, but what frequently occurs now, and sometimes causes serious loss, is when a breeder finds a bird dead under the perch. He makes a post-mortem examination, finds the birds in an overfat condition, immediately reduces the quantity of food for the flock, administers a dose of salts, often an excessive one, and finds a rapid decrease in the egg yield. Here is a case in point: A bird was found dead, post-mortem revealed fatty degeneration, and the advice was given to reduce the food, and give salts. In a few days there was a very considerable drop in both the numbers and size of eggs, and 25 per cent. of the birds went into a premature moult. Previously the egg yield had been quite satisfactory. The mistake was made of judging the condition of the flock by that of a single individual. When the egg yield is normal for the season, there is small probability of the flock being in an overfat condition, and in every flock there are individuals with predisposition to fat, and these birds will lay it on when a good layer would be on the light side. Birds with a predisposition to fat are of no value. They may contribute to the egg basket for a time fairly well; as breeders they are useless. I only draw attention to this, because beginners often send birds for post-mortem, and are advised that they are in an overfat condition. They believe their flock must be so too, and begin to reduce the food and administer salts, with most unfortunate results. They should remember that if the egg yield is normal there is little danger of the birds being overfed, and that it is unwise to judge the condition of a flock by that of an individual.

BEES.—SWARM CONTROL.

E. D. D. MADOC.

When the apiarist has worked his stocks up to their greatest strength, in preparation for the coming honey harvest, his next care is to keep them in that state; in doing this, the greatest difficulty will be to prevent the loss of the greater part of the adult worker population of the hive through swarming. Unfortunately there is no sovereign cure for this disastrous habit, any more than there is one sole contributing factor. There are several points of undoubted importance through their influence in thwarting the natural desire of the bees to swarm. Of these the most important are:—Sufficient room for the present and near future needs of the bees; the supply of drawn combs, or at least frames containing full sheets of foundation; adequate ventilation; a young queen of good strain.

Perhaps the most important of these is the provision of sufficient room at the right time. It is no use giving room when the bees are crowded; the bees look ahead if the bee-keeper does not, and by the time the hive is full the bees will have made preparations for swarming and any amount of room will not prevent swarming when once they have got the idea into their heads. It is essential that the amount of room in the hive should be always slightly in advance of the needs of the colony at any given time; it is far better to give room a little too early than too late.

In speaking of "giving room," we generally mean supplying supers or receptacles for surplus honey, and it depends largely on the nature of these whether they are readily acceptable to the bees, and therefore "anti-swarming," or not.

Empty combs of fair size are much preferred by the bees, but if these are not available frames containing full sheets of foundation are next best, with sections fitted with starters only a bad third.

Sections may be made more attractive by fitting them with full sheets of foundation, and by putting one or two sections in the super, containing empty comb left over from last year ; but bees generally have a decided aversion to storing their honey in the small isolated compartments formed by the sections, and swarm prevention is rendered much more difficult in comb honey production than is the case with extracted honey for this reason.

Ventilation is important ; and here, again, too much is better than too little. A strong stock will do best with a large amount of ventilation. The hive entrance should be open to its full width, and four small wooden blocks placed between the broodchamber and floorboard, giving an entrance on all four sides, will do much towards swarm prevention, especially where comb honey is being produced.

Last, but not least, the queen should be young, certainly not more than two years old, and of a strain of good honey gatherers, showing little inclination to swarm. The desire to swarm is much stronger in some races, and in some strains of the same race, than in others, and success in swarm prevention is largely governed by the inherited characteristics of the bees in this respect.

OTTERY FAT STOCK SHOW AND POULTRY CLASSES.

A letter from Capt. H. M. Jelley, the Secretary of the East Devon Branch of the Scientific Poultry Breeders' Association, was read by the Hon. Secretary. It was to the effect that the Poultry Association desired that an amalgamation be made between the two Associations, and that members of each Committee serve on both the Associations.

Capt. Jelley addressed the meeting, and said that his Association dealt with the breeding of poultry generally. He was of the opinion that on West Hill they had some of the finest stock in the West of England, having won prizes at the Dairy Show in London. They had 45 members in their Branch Association, and he thought that his members would put up a Silver Cup, to be called the Secretary's Cup. (Applause).

Mr. Durrant proposed that Live Poultry Classes be added to the show, as he thought that it would be a great attraction.

Mr. John Peek seconded, and it was carried unanimously.

On the motion of Mr. Masters, seconded by Mr. A. A. Eveleigh, it was decided to ask the Poultry Association to submit six names for the Committee.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

WORLD'S POULTRY CONGRESS.

GOVERNMENT DINNER TO DELEGATES.

The American and Canadian delegates to the World's Poultry Congress, recently held at Barcelona, were entertained by the Government at a dinner given at Lancaster House, St. James's.

Mr. Noel Buxton, Minister of Agriculture, presided. In proposing the health of the guests, he said that the domestic hen had rendered great services to humanity, and had now done something for the cause of internationalism. The British Government were grateful to America for the courtesy shown to their representative, Mr. P. A. Francis, on the occasion of his visit last year for the purpose of research in poultry culture. America and Canada were ahead of this country in poultry culture, but we were proud of the fact that our breeding stock was in great demand in other lands. We had not developed our poultry industry here sufficiently to meet our own demands, but we supplied the market for other people. In 1923 we imported £16,000,000 worth of poultry goods, and our output of £14,000,000 worth was nearly that of our wheat output of £15,000,000. He believed that our poultry growers would uphold our reputation for high-class breeding. His Ministry had a poultry advisory committee and had given in recent times about £40,000 to poultry institute work, besides making grants for research. They were happy to know that these world congresses had been initiated by one of their own countrymen, Mr. Edward Brown, and he understood that the next would be held in 1927 in Canada—the first to be held on the other side of the Atlantic. They all felt that poultry-keeping was a highly important branch of the world's oldest and foremost industry.

Professor Willard Thompson, who was cordially received, responded on behalf of the U.S. delegates. He said he thought that most of them had gone to Spain, because it was on the road to England. They were all immensely looking forward to their short tour through this country, and were very grateful for the hospitality which had been extended to them. After referring to the educational methods employed in the United States, he said that they had one patron Saint in common, Mr. Edward Brown, who had been the pioneer. It must afford him very great pleasure to see the remarkable developments in the poultry industry. Professor Thompson spoke in the most eulogistic terms of Mr. P. A. Francis, his visit to the States had given them the greatest pleasure, and they would always retain the most pleasant recollections of it.

Professor F. C. Elford, who had a great reception on rising, responded to the toast on behalf of Canada. He spoke of the possibilities of poultry farming in this country, and remarked that he was almost tempted to stay here. He could not understand why we could not produce all our requirements here when we had everything in our favour. He hoped we should not do so in his life time as he was very anxious to supply us with the Canadian egg. Mr. Elford then proceeded to describe its method of grading and distributing eggs in Canada, and remarked that theirs was the only country in the world which made it a National Concern. Referring to the Canadian Record of Performance, he said that this had already effected breed improvement to such a marked degree that there was a demand for their stock from other countries, and it did much to assist them in eliminating the rogue. He, too, spoke in the highest terms of the great work accomplished by Mr. Edward Brown and Mr. P. A. Francis, remarking that they loved the latter like a brother, or perhaps two or three brothers.

Lord Dewar, in a humorous speech, proposed "The Poultry Industry of the United States, Canada and Great Britain," a toast which was seconded by Mr. Stanley Street-Porter.

At the chairman's table were :—

The Hon. Miss Florence Amherst, Professor W. F. Kirkpatrick, Professor F C. Elford, Mrs. Elford, Sir Francis and Lady Floud, Mr. W. R. Smith, M.P., Mrs M. Birks, Mr. Stanley Street-Porter, Lord Dewar, Professor W. C. Thompson, Mrs. Haring, Mr. and Mrs. A. W. Wilson, and Mr. F. W. Jowett, M.P. (First Commissioner of Works).

Among others present were :—

Lord Claud Hamilton, Sir Donald and Lady Hall, Professor A G. Phillips, Colonel S. Sandbach, M. M. W. F. de Wachenfelt, Sir Stewart and Lady Stockman, Mr. and Mrs. E. B. Rutherford, Mr. and Mrs. E. E. Beare, Mr. P. G. Dallinger, Mr. Clem Watson, Mr. W. E. Walters, Mr. G. B. Metcalf, Mr. and Mrs. P. A. Francis, Mr. P. Hedworth Foulkes, Mr. J. N. Leigh, Mr. Tom Newman, Mr. G. F. Laurence, Principal Wilson, Mr. and Mrs. S. H. Lewer, Mr. J. G. Kitson, Mrs. Wilson, Mr. and Mrs. E. Rhoades, Mr. C. A. Flatt, Mr R. Fletcher Hearnshaw, Mr. Laurence Rogers, Mr. and Mrs. Wynn Thomas, Miss N. H. Bell, Mr. A. H. Brownson, Mrs. Metcalf, Mr. Edward Brown, Mr. H. E. Dale, Mr. and Mrs Marcus Slade, Major Tom Potter, Mrs. Rhoades, Dr. Haring, Mr. T. R. Robinson, Mr. E. A. Foley, Mrs. Rawson, Dr. and Miss Kilgore, Mrs. Charlotte B. Ware, and Mr. Bradgate.

Scientific Poultry Breeders' Association.

COUNCIL MEETING.

The Monthly Meeting of the Council was held at the Memorial Hall, Farringdon Street, on Wednesday, May 28th. The President (Mr. J. G. Kitson) was in the chair. Members present were Mrs. Hunter, Miss Maddison, Mr. P. L. Johnson, Mr. J. Smart, Mr. P. Hedworth Foulkes, Mr. E. Bostock Smith, Mr. E. J. Meekings, Mr. F. W. Wait, Mr. Lester Spurgeon, Mr. A. Harold Paine, Mr. J. H. Dowden, the Treasurer and Secretary.

Before opening the proceedings the President, on behalf of the Council, expressed the very great pleasure it was to every one present to have their old friend, Mr. P. L. Johnson, with them once again. He was a very valued member of the Council, and now they again looked forward to having the benefit of his advice and experience. Mr. Johnson thanked the President, and said how very much he had looked forward to the time when he could be with them, and what a great pleasure it was for him to be there.

SECRETARY'S REPORT.

The Secretary reported that 89 new members had been elected in April, and that the Affiliation fee to the National Poultry Council had been paid to end of April for 5,790 fully paid up members.

TREASURER'S REPORT.

The Treasurer submitted his report, which was declared satisfactory, and adopted on the proposal of Mr. P. L. Johnson, seconded by Mr. Foulkes.

"EGGS" COMMITTEE.

The Chairman (Mr. J. G. Kitson) remarked that his duty was becoming monotonous, for every month he had to congratulate them on the satisfactory position and the increasing circulation. That was his duty again that day. Mr. Meekings spoke of the highly complimentary terms in which the overseas delegates had referred to "Eggs" when talking to Mr. Foulkes and himself at Barcelona, although at the time they were wholly unaware that either of them were connected with the S.P.B.A.

FOODS COMMITTEE REPORT.

The Chairman (Mr. J. G. Kitson) informed the Council that a special meeting had been held that morning, and the Committee were of opinion that the support promised warranted their proceeding with the scheme, and it had been decided to hold another special meeting of the Committee on June 11th. Applications had been received from several societies to be allowed to participate in the scheme, but the Committee strongly recommended that it should be applicable to members of the S.P.B.A. If a man expected to derive financial benefit from the scheme he should expect to pay the 5s. subscription to the S.P.B.A., which would entitle him to its benefits.

On the proposal of Mr. Foulkes, seconded by Mr. Meekings, it was agreed to offer Challenge Cups for the best winter record obtained in any of the following Laying Contests :—Northern Ireland, Southern Ireland, and the Scottish Test.

DINNER TO OVERSEAS DELEGATES.

It was unanimously agreed that the Council should co-operate with the Poultry Club and the N.U.P.S. in inviting the Americans and Canadian delegates to a dinner to be held at the Savoy on June 9th.

MR. P. L. JOHNSON.

Every member of the Council was delighted to welcome our old friend, Mr. P. L. Johnson, at the meeting on May 28th after the long illness caused by his serious accident in October last, and I am sure his many friends will heartily welcome his return. Mr. Johnson has been closely associated with the S.P.B.A. from its formation. Indeed, he was one of the founders, and he has been a tower of strength to us, for in those early days the road was not always easy, and we none of us expected that our Association would exercise the powerful influence on the poultry industry in this country that it has done.

THE FOOD PURCHASE SCHEME.

May I ask members to exercise a little patience. The launching of a scheme such as this requires a great amount of thought, deliberation and investigation. The Committee will meet again on June 11th, and as soon as we are in a position to make a definite statement it will be published in "Eggs." I have scores of letters of enquiry, which at the present state it is wholly impossible to answer.

CENSUS PAPERS.

Will members who have not returned their Census papers kindly do so at the earliest possible date. May I repeat that the report will be treated as strictly private and confidential. The sole object of the Census is to obtain some idea of the total number of birds kept and the breeds and varieties, and it is not in any sense intended as an inquisition into members' affairs, as one or two appear to fear.

S.P.B.A. ACCOUNT BOOKS.

We have now ready the "Scientific Poultry Breeders' Account Book," as compiled by Mr. Alfred Brown and published by the S.P.B.A. Full instructions as to the methods of keeping accounts are contained in the book, which is complete in itself. It is safe to say that no more simple and satisfactory method has yet been devised for keeping poultry accounts. I would say that it "supplies a long-felt want," but that is such a hackneyed saying. We are very much indebted to Mr. Brown, who presented the method of keeping accounts to the Association. The price of the book is 6s. post free.

Correspondence.

VACCINES AND SERUMS.

To the Editor of "Eggs."

Dear Sir,—In reply to your criticism of my letter on vaccines, serums, and so on in your issue of "Eggs," dated April 23rd, 1924, I beg to say that, as a commercial poultry farmer, all I ask for, expect, and wish by way of immunity from disease against which I have used vaccines, is a period of 12 months' freedom from disease trouble from the date of the second inoculation.

The information you ask for by way of evidence of my contention is as follows:—

Season 1922-1923. Inoculated once.

(A.) One house—1,100 White Leghorn Pullets came through the year for 12 months practically intact and free from any form of disease whatever.

(B) One house—500 hens immune for eight months; after that not more than 40 cases contracted some form of the disease—most of them eye cases.

(C.) One house—300 hens—much the same as (B.)

(D.) One house—600 pullets, all sisters to pullets in (A.), immune for three months; afterwards considerable trouble, amounting in all to about 50 per cent. of them down at some time or other over a period of four months, and finally cleared up.

I ought to say that the housing conditions in (D.) were nothing like as good as they were in (A.), (B.), and (C.).

Season 1923-1924.

All the birds on my farm were inoculated with the same vaccine in two doses, with the following results:

(A.) One house—500 hens, immune so far for eight months; have only had one eye case up to the present.

(B.) One house—400 hens ditto; three cases.

(C.) One house—600 pullets and 300 hens. All these pullets showed evidence of a violent outbreak of an epidemic six weeks after the inoculation of two doses, those with evident signs of disease were inoculated with a serum, and those without such signs were inoculated again with two doses of a different vaccine, and up to the present we have only had 15 per cent., most of which are eye cases.

(D.) One house—1,100 pullets, sisters to those in (C.) showed similar signs of an outbreak six weeks after the first inoculation of two doses; inoculated a second time with a different vaccine and serum, with a result such as we had in (C.) not more than 15 per cent., and have recently all cleared up with no trouble whatever.

You will probably say that this is a bad record. I agree. It is not what I should like, and have a right to expect, but what I will say is this—that although there have been evidence of disease from vaccination, if signs of an epidemic did appear, it did not make the ravages and the havoc amongst the birds that it made in a flock which had not been vaccinated.

The first lot of vaccines which were given to the pullets on (C.) and (D.), Season 1923-24, which I have referred to, were apparently quite useless, and probably of the same sort as was used in the 20,000 dose cases, which you mentioned in your reply to me. I am a firm believer in the principle of vaccines, properly prepared, and in the principle of vaccination against disease, and nothing you or I or anyone else may say or write against the subject will ever rob the principle of its place in the poultry industry and similar industries. It has got to come, and it holds the field until you can improve it. The failures you mention, as well as the one I record above, are not sufficient to damn the principle; useless vaccines cannot be expected to produce the results of a reliable vaccine, and this is the whole root of the contention. Mr. McLaren's serum, for instance, I have proved, and so have many others, to be absolutely reliable as a cure. I have used his vaccines this year with the results mentioned above in (C.) and (D.) They are not perfect, and I think can be improved on. You mention a case of 300 pullets in which the original vaccine given in two doses is probably of the same quality, and may have been from the same source as I used on my pullets. A second dose of vaccine, given in the presence of disease, is quite wasted, and had the unfortunate poultry farmer, to whom these birds belonged, been told and advised that the thing to do was to give them a serum instead of a vaccine, he would probably have had the results I have had. It is useless to vaccinate birds when they have signs of the disease. I am given to understand that, in spite of your denial, the Editor of "Eggs" has definitely refused the publication of a criticism of one of his articles on this subject by one of its readers and subscribers.

That is unfortunate, and I think a mistake. I am sorry my busy life will not permit me to follow up these arguments with replies and counter-replies, and I would suggest to you that you should issue an invitation to the producers of vaccines to justify their existence before the poultry industry, and to tell us what they propose to do that they have not already done to help us, or close down and make room for somebody else who can.

Yours faithfully,
A SUBSCRIBER.

VACCINES AND SERUMS.

To the Editor of "Eggs."

Dear Mr. Newman,—I cannot but feel deeply regretful that the Editorial of "Eggs" ever took on the destructive criticism which it has done with regard to the question of Vaccines and Serums.

However much it may try to juggle with its own words and phraseology, at the bottom it has stated that Vaccines and Serums are not good.

Now the wonderful thing is that the same Editorial has often been read to say that "we must turn to our scientists and medical men to find the way out," or words to that effect.

Treatment by vaccines and serums have been found to be "ways out" in the treatment of a number of diseases in human beings. It is in its infancy at present in respect of poultry. Why "down" it in its infancy, and set up a lay opinion against the scientific opinion which was courted to find the "way out."

This controversy is only irritating various sections of the community, and is encouraging people to write letters which are quite laughable if they were not sad in that that they show lamentable ignorance can be found amongst some people.

When we are asked to believe that if one washes every day, and puts on a clean shirt, that we shall not contract "Diphtheria," for instance, or that the vaccine treatment consists in producing one disease to cure another, or that a disease will not make headway if the blood current is clean and free from PUTRID matter, as I say, when we are asked to accept this stuff with "body in it," it is difficult to know whether to laugh or cry.

Anyhow, none of it is good reading, and I for one shall be pleased to see the "closure."

Yours truly,
J. C. CLAYTON, M.R.C.S.

Dr. Clayton will pardon us if we ask him to remember that the whole controversy arose over a statement made in an article on "Chick Mortality," in which we said we have no faith in vaccines and serums. This assertion was challenged, and it was necessary to explain, and we had good reason to complain of the manner in which what was written was misrepresented. We have not the slightest intention of juggling with words, and say here explicitly that we have no faith in Vaccines and Serums, and not the slightest piece of evidence has so far been adduced to prove that either as preventatives or cures, have they been any more effective than the remedies usd by our great grandfathers. Dr. Clayton states that "treatment in vaccines and serums is in its infancy at present in respect to poultry," and asks why "down it in its infancy, and set up a lay opinion against the scientific opinion which was courted to find the way out." We ask why "boost" it in its infancy and set up a lay opinion founded on practical experience of its ineffectiveness?

We quite admit that we have frequently said we must turn to our scientists to find a way out ,or words to that effect. But we would remind Dr. Clayton that science is not confined to vaccines and serums, and that disease may be successfully combatted by scientists without the use of either vaccines, serum or drugs, and that it is far more important that it should be impressed upon poultry keepers that disease will be more successfully fought by hygienic methods than by the use of vaccines and serums, etc.

No one has been asked to believe that if one washes every day, and puts on a clean shirt, we shall not contract diphtheria, but by such methods we are far more likely to prevent it spreading, than we are by the means advocated by those who have put their faith in Vaccines, etc., and we prefer to fight it by washing and a clean shirt, than with a vaccine and a dirty one.

We only propose to reply to one paragraph in "Subscriber's" letter, and will leave the remainder to the judgment of our readers, merely remarking that we have not "damned the principle." Many things are right in principle which are not borne out in practice. All failures we record are attributed by our critics to faulty vaccines or methods employed. There is not one who will admit their ineffectiveness, although they cannot produce evidence that they are in any way more effective than remedies used by our grandfathers.

In the paragraph to which we refer, "Subscriber" says: "I am given to understand that, in spite of your denial, the Editor of 'Eggs' has definitely refused the publication of a criticism of one of his articles on this subject by one of its readers and subscribers."

Again "Subscriber" has treated us unfairly. If he had referred to what he states is our denial, he would have seen that we stated definitely: "Every criticism, **save one**, which has been received, has been published, and that was withheld for a reason which had nothing whatever to do with the criticism itself." That was the letter to which "Subscriber" refers, and it is doing us an injustice to write as he does, which suggests that we had denied we had refused publication to every criticism of one of our articles when we had definitely stated that we had refused publication of the one letter to which he refers, and we may add here that we have again refused publication of another letter from this individual for the simple reason that the tone he adopts is so discourteous, coupled as it is with accusations of bias and prejudice, that we refuse to publish them until a more courteous tone is adopted.—(Editor).

Since writing the above we have received a letter, from which we quote the following, which will prove to our critics that, at least, the arguments from our lay mind are endorsed by men with scientific knowledge:—

"Keep pushing the vaccine serum business home. From my knowledge of medicine I know that *many* of them are useless—a few are good. Your arguments are very sound.

"With every appreciation of 'Eggs.'"

I remain, your very truly,
F. E. G., L.D.S., R.C.S., Edinburgh.

APPLICANTS FOR MEMBERSHIP.

Dronsfield, Walter, Paxford, Wilmslow, Cheshire.
Pritchard, A. H., The Firs, Iron Bridge, Salop.
Wingfield, Miss J., The Castle, Tiverton, Devon.
Foster, Capt. R., Park House, Queensbury, Yorks.
Prentis, Ed., "Lancing," Crowstone Road North, Westcliff-on-Sea.
Shearsmith, A. Ewart, Newstead Priory, Brigg, Lincs.
Smith, R. J. E., Rosedale, Ringmore, Shaldon, near Teignmouth.
Town, Harold, 14, Hedge Top Lane, Northoweram, Halifax.
Stott, Miss L. G., Chelterne Cottage, King's Langley, Herts.
Hanna, Mrs., Ivan Villa, Dublin Road, Lisburn, Ireland.
Holdsworth, Miss N., Mayortorne Manor, Wendover.
Elsdon, A. C., Empshott Cottage, Snape, Suffolk.
Myers, H. C., Managing Director, Kenlaw Private Hospital, Ltd., Kenlaw House, Colinsburgh, Fife.
Gayford, Mrs. G., East Raynham, Fakenham.
Lumsden, Mrs., Wretham Lodge, Forest Row, Sussex.
Lomas, F. B., Todds Farm, Shaftesbury Road, Birkdale, Southport.
Leyland, Mrs. C. D., Haggerston Castle, Beal, Northumberland.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, MAY 30th, 1924.

GRAIN AND FEEDING STUFFS.—Home-grown wheat is in limited supply. At Bristol and London prices show advances of 3d. and 4d. per cwt., respectively, compared with last week. Moderate quantities of imported wheat are in fair request and prices have a dearer tendency. Practically no British barley is on offer, while a quietly steady trade prevails for imported descriptions at unchanged rates. Fairly good supplies of English white oats are available, but black varieties are scarce, and with little trade passing quotations are unaltered except at Bristol. New crop Argentine maize is in moderate supply, and meets a quiet trade at similar prices to last week.

A very quiet demand exists for bran and prices show a further decline, the average rate being £7 1s. per ton as compared with £7 9s. last week and £7 18s. at the beginning of May; middlings are in rather short supply and maintain late rates, while imported pollards are scarce and dearer. A small amount of trade is passing in linseed and cotton seed cakes and prices show little change.

MILLERS' OFFALS.—Bran (British): Bristol, £7 12s.; Hull, £6 12s.; Liverpool, £7; London, £7. Broad Bran: Hull, £8 2s.; London, £8 2s. Middlings: Fine (Imported): London, £9 10s.; Coarse (British): Bristol, £9 5s.; Hull, £9; Liverpool, £8 5s.; London, £8 17s. Pollards (Imported): Bristol, £8; Hull, £7 5s.; Liverpool, £7. Rice Bran: Bristol, £7 10s.; Liverpool, £7 15s MEAL.—Barley Meal: Bristol, £10 12s.; Hull, £10; London, £10 10s. Maize Meal: Bristol, £12; Hull, £11 5s.; Liverpool, £10 10s.; London, £11 10s. Maize Germ Meal: Bristol, £11; Hull, £10; London, £9 7s. Maize Gluten Feed: Bristol, £11 5s.; London, £9 7s.

EGGS AND DEAD POULTRY.

There is a tendency towards hardening values for British and best continental eggs, but Irish are cheaper at Liverpool and lower grade imported are also sold at lower prices at London. A fair enquiry exists for dead poultry, but ducks and chickens are generally quoted at a reduction of 1d. to 2d. per lb.

Week-end Prices—Eggs (per 120): British, 14s., 13s.; Irish, 13s. 6d., 13s.; Danish, 16s. 6d., 14s. 6d.; Dutch, 16s., 14s. 6d.; Belgian, 13s. 6d., 13s.; Russian, 11s., 9s.; Styrian, 12s. 3d., 11s. 6d.; Polish, 11s. 6d., 10s. 6d.; Egyptian, 9s. 3d., 9s.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 9d.; 2s. 4d.; Irish, 2s 2d., 1s. 10d.; Others, 2s. 3d., 1s. 10d. Ducks, 1s. 10d., 1s. 7d. Geese, 1s. 4d., 1s. 2d.

EGGS.

Per Doz.—Ashford: First, 1s. 4d.; Second, 1s .2½d. Birmingham: First, 1s. 3¼d.; Second, 1s. 3d. Bridgwater: First, 1s. 2½d.; Second, 1s. 0d. Carlisle: First, 1s. 4d. Chelmsford: First, 1s. 5½d.; Second, 1s. 3½d. Denbigh: First, 1s. 1d.; Second, 1s. 0d. Derby: First, 1s. 3d. Dorchester: First, 1s. 2½d. Exeter: First, 1s. 3d. Hereford: First, 1s. 1d. Hull: First, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 3d. King's Lynn: First, 1s. 2d.; Second, 1s. 0d. Lincoln: First, 1s. 3d. Llandilo: First, 1s. 1d.; Second, 1s. 0d. Newport (Mon.): First, 1s. 3d.; Second, 1s. 2d. Norwich: First, 1s. 2½d. Oswestry: First, 1s. 2d.; Second, 1s. 1d. Penzance: First, 1s. 3d.; Second, 1s. 2d. Salisbury: First, 1s. 3½d.; Second, 1s. 2½d. Shrewsbury: First, 1s. 2d.; Second, 1s. 1d. Skipton: First, 1s. 3d. Truro: First, 1s. 3d. York: First, 1s. 4d.

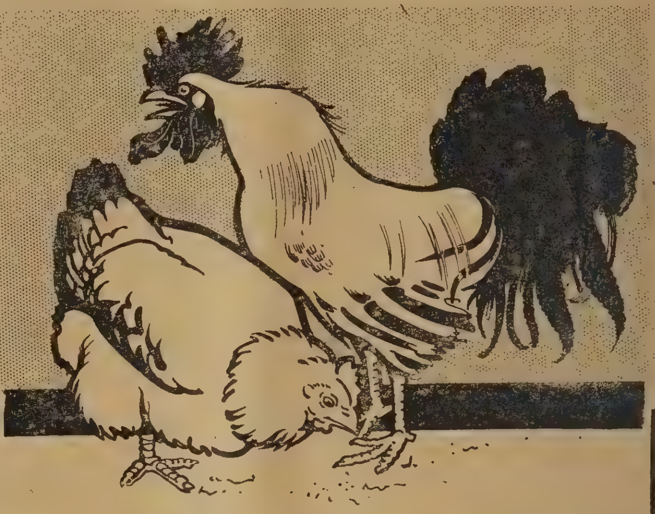
FOWLS.

Per lb.—Birmingham: First, 1s. 9d.; Second, 10d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 9d. Hereford: First, 1s. 9d. Ipswich: First, 1s. 10d.; Second, 1s. 8d. Lincoln: First, *5s 0d.; Second, *3s. 6d. Llandilo: First, 2s. 4d.; Second, 2s. 2d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Truro: First, 1s. 4d. York: First, *5s. 6d.; Second, *4s. 6d.

DUCKS.

Per lb.—Birmingham: First, 2s. 0d.; Second, 1s. 9d. Exeter: First, 1s. 8d. Hereford: First, 1s. 7d. Llandilo: First, 2s. 6d.; Second, 2s. 4d.

* Per Head.



Feed 'em on FARINOL SUPERIOR POULTRY FOOD

"Farinol" Poultry Foods have an established reputation for all that is best, and are guaranteed pure and wholesome. They represent the best food value obtainable and can be relied upon for both quality and price. We have installed a new plant on the most approved lines and can give quick delivery to large or small orders. Feed your poultry on "Farinol" and ensure the best results.

FARINOL SPECIALITIES.

Per cwt.	s.	d.	Per cwt.	s.	d.
Barley Meal, pure ...	15	6	Maize Germ Meal	14	0
Pig Meal	14	0	1st Chick Feed	20	6
Thirds	11	0	2nd Chick Feed	19	6
Bran	11	0	Cut Wheat No. 1	17	6
Charcoal	21	6	Cut Wheat No. 2	17	0
Pure Sussex Ground Oats	16	9	Whole Wheat	15	6
Complete Laying Meal	15	9	Scotch Groats	21	6
Clover Hay Meal	13	6	Pinhead Meal	21	6
Fine Ground Malt Culms	10	0	Heavy White Poultry Oats	14	6
Fine Ground Locust Germ Meal	11	0	Extra Mix Poultry Corn	14	6
Fine Ground Dried Grains	12	0	Flint Grit	8	6
Blood Meal	27	0	Per 28 lb.		
Fine Meat Meal	19	0	Fine Ground Peat Moss Litter	3	3
Granulated Meat	23	6	Fine Ground Pine Moss Litter	3	9
Meat and Bone Meal ...	18	6	Per 112 lb.		
Bone Meal	17	6	Oyster Shell Grit	10	6
Granulated Meat and Bone	21	0	Biscuit Meal, Fine ...	19	6
Chick Grade Meat	23	6	„ „ Medium ...	28	6
Granulated Bone	18	6	„ „ Coarse ...	28	6
Maize Gluten Feed ...	14	0	Corn Grits	14	6

Terms.—Carriage 6d. per cwt. extra for small quantities. We pay carriage on 4 cwt. lots. Special terms quoted for one, two and four ton lots. Orders should be accompanied by remittance.

FARINOL COMPANY
— WILSON ST. & PARK ST. —
STOCKPORT

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, June 11th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

IS GRIT NECESSARY?

First, let us thank the anonymous correspondent, who writes.—"Of course it is; you seem to spend the best part of your time preaching heretical doctrines, can't you find some other amusement?" He should remember that mere assertion is not proof, and, as we have said before, the heretic contributes more to progress than the orthodox. The S.P.B.A. would never have held its present position as the most influential poultry society in the country had it not been for its refusal to accept the orthodox views held 10 years ago. In the article, "Is Grit Necesssary?" which appeared on April 14th, it was explicitly stated that we were discussing the value of grit as an aid to mastication of food, not as to its mineral content, so please let us keep to that point.

Our friend, Mr. Heinze, appears to look upon the crop as merely a store room. The best authorities, including Fabre, accept the fact that digestion begins in the crop, and continues while food is passing from it to the gizzard. Later speaking of the gizzard, Mr. Heinze says: "The inside of the latter is covered with a thick wall of protective skin, but it does not contain any essentials for the grinding up of the food; it simply pulps it, but cannot perform any cutting action so very necessary for correct digestion." How then does Mr. Heinze explain Spallanzani's experiment, which was cited in the article under discussion, viz.: Small glass balls of especially tough quality, fed in the food of hens. Hens opened up three hours afterwards, and most of the balls were by that time reduced to very minute fragments, with all edges blunted completely, as if they had passed through a mill. Other birds killed later had reduced the glass balls to a mere powder. Gizzard walls were absolutely unaffected. Here, then we have the gizzard as a *crushing* and not a *cutting* agency; by its muscular action it has reduced *specially toughened glass balls to powder.* Again we ask, if the muscular action of the gizzard is so great that it can grind toughened glass balls to powder in three hours what is there to prevent it dealing equally effectively with a handful of grain which has been previously acted upon by the gastric juices?

Mr. Heinze is mistaken. We did not refuse to commit ourselves. That a bird will keep in perfect health and production without grit of any kind, but, perhaps, this will help him. It is not the first time we have mentioned it in "Eggs." In 1917, when it was almost impossible to get oyster shell or grit of any kind, we solved the difficulty by getting ordinary lime. This was covered with cold water, laid in the sun to dry and then broken up, and given to the fowls in hoppers. It is only fair to say that the idea was not our own, but was taken from the South African Poultry Magazine. No grit of any kind was procurable. The birds kept in perfect health and production on this for over 12 months.

We were discussing the question of grit as an aid to the mastication of food. On very many occasions we have endeavoured to show in these columns that its real value lies in the mineral content. We have no belief in it as a "cutting" agency, so that Mr. Heinze's question is a little unnecessary, but perhaps he will agree that shell-forming material is necessary to keep a fowl in perfect health and production. We quite appreciate the value of oyster shell apart from its value for shell-forming alone, and our readers are aware that powdered oyster shell has on more than one occasion been advised in these columns by us, as a constituent in the mineral mixture recommended to supplement a ration which is likely to be deficient in its mineral content.

Whatever induces Mr. Heinze to write of doing away with the grits and green foods with their valuable mineral properties, we are quite at a loss to understand. No such suggestion was ever made by us. We were simply discussing the question as to whether grit was an aid to mastication, and divorced it from the question of its mineral value, solely because we wished to keep to the point under discussion. Finally, we concluded by advising readers to buy grit on analysis, and to refuse to pay high prices for the much-boomed samples which contain a high percentage of insoluble silicious matter. So that perhaps Mr. Heinze will realise that we do appreciate the value of the mineral content of grit.

It was never suggested that a fowl received very much gastric juice as an aid to digestion in the gizzard. It probably does not. What Mr. Heinze means when he says that he "would rather opine the juices are from the mineral content of the food," it is a little difficult to understand.

Some research workers in America have come to the conclusion that the real value of grit lies in its action on tough grasses swallowed by the fowl, and expressly state that smooth stones are best suited for this purpose.

Can any of our readers tell us whether grit is found in the gizzard of purely insectivorous birds? This would have some bearing on the subject.

Mr. Heinze does not agree that maize is sufficiently ground without grit. From practical experience we can tell him that it is.

We were quoting a very much higher authority than ourselves when we said that the crop corresponded to the rumen or paunch of mammals, and surely he will agree that the food in the crop is subjected to the action of the gastric juices.

We have thus three theories by those who believe in grit as an aid to mastication: (1) That it is an aid in grinding the food in the gizzard. (2) That it is used as a cutting agency. (3) That its only value is in its action on tough grasses.

There are plenty of poor samples of clover meal, unfortunately, but we never before heard of their causing a bird to overload itself with grit, and it appears to us that the fact that the droppings were tinged with blood indicates digestive trouble caused by the excessive amount of such an indigestible substance such as grit, rather than to the absence of cooling food with good mineral content.

POST-MORTEMS.—IMPORTANT.

Readers are advised that in future reports of post-mortem examinations will be made by post only and not through the columns of this journal.

In the majority of cases submitted to Capt. Leeney, the disease is of a contagious nature, and it has been found necessary, in the interest of the breeder, to reply by post, as the delay entailed before the result could be published would be disastrous. The fee will be 5s.

Such cases as may be of general interest will be reported in these columns, in addition to the report sent to the breeder.

It must be clearly understood that under no circumstances can Capt. Leeney enter into correspondence regarding the report made.

Modern Poultry Feeding.

By TOM NEWMAN.

CHICKEN REARING EXPERIMENTS AT WELLINGHAM.—CONCLUSION OF FIRST SERIES.—A REMARKABLE FINISH.

The first series of chicken rearing experiments at Wellingham were brought to a conclusion at the end of the 12th week (May 23rd). The results may be regarded as highly satisfactory, especially so in the case of the third experiment, the average weight of the 30 birds at the conclusion being 2lbs. 13.6ozs. Perhaps the most satisfactory feature of this is that the weights were obtained on what, from every point of view, may be regarded as a sound commercial mash. The constituents of this mash are within the reach of everyone; moreover it is cheap and economic, and let me emphasise the fact that it is a dry mash.

If we compare these with those obtained in the first four experiments last year, we find that the first concluded at the 11th week, and the average weight of the chickens was 2lbs. 11.297ozs.; the second at the 12th week averaged 2lbs. 13,378ozs.; the third at the 12th week averaged 2lbs. 8ozs.; the fourth at the 11th week averaged 2lbs. 10.708ozs.

It will be remembered that in three of the above experiments, 33 1/3rd per cent. of the total mash consisted of dried milk, which is now almost prohibitive in price, and that Marmite was used in all the formulas, which were fed moistened. Below is the formula which I drew up at the request of the Council of the S.P.B.A., and on which the results were obtained in the third experiment. Even now the experience suggests some modifications, but we will leave it as it is at present. In our issue of December 19th I explained my reasons for the composition of this mash, and the others.

THE MASH.

20 per cent. Broad Bran, 45 White Flour Middlings, 10 Sussex Ground Oats, 10 Rice Meal, 5 Milk, 5 Dried Yeast, 5 Soya Bean Meal.

The cockerels have now been sent to the fattening crate, and Miss Malcolm has kindly promised to let me have individual and average weights later. In regard to the second series, in which the same formulas were used with the addition of a salt mixture, the results are hardly equal to those obtained in the first series; so that we may conclude that the mineral content was adequate, and when that is the case nothing is to be gained by endeavouring to supplement it.

One fact is of importance here—the animal protein consisted solely of the milk, 5 per cent. It is true that during the last few weeks the chicks were in the colony houses, and there was an abundance of insect life to be found in the fields, but up to seven weeks they depended entirely on the 5 per cent. milk as the source of animal protein. We have had records of experiments in which there has been an endeavour to demonstrate that flesh food in some form was necessary to the healthy development of the chick, and photographs of miserable examples which have been deprived of animal protein other than milk, but our experiments, both this year and last, have proved this view to be wholly erroneous, if the ration is properly balance in other respects. It should be added that all the chicks used in these experiments were Light Sussex. I must not conclude this report without saying that it is only fair to mention that last year the number of chicks in each experiment averaged 80, while this year there are only 30 in each experiment; that is important, but against this we have the fact that last year's chicks had the advantage of better weather conditions, and also were earlier hatched.

THE MOULT.

In reply to numerous questions as to the moult, may I remind my correspondents, that for a bird to go through the moult without trouble she must be in good bodily condition. The moult is a perfectly natural affair, and it is only birds in poor bodily condition which come through it badly, unless there is something wrong constitutionally. No greater mistake is made than attempting to throw a pullet into a moult, in the hope that you will get more autumn or winter eggs. The usual method employed is to reduce the food until the feathers begin to fall, and then to feed up afterwards; but it should be remembered that during this period of semi-starvation the new feathers do not develop. Feed your birds normally, see their bodily condition is good, and if they do hang a bit, add 5 per cent. linseed meal to the mash. I have never any trouble in getting my birds through the moult, and I attribute it largely to the fact that I feed maize all the year round, so that the birds are never in under-condition. There are some exceptional layers which will not moult, and lay so late in the year that they are of little value as breeders next season. It is necessary to throw them into a moult, but the semi-starvation method is not advisable; often a complete change of diet and removal to another house will effect it.

THIN-SHELLED EGGS.

So many complaints of thin-shelled eggs come to hand, and writers invariably say that there is a plentiful supply of oyster shell or other shell-forming material. As a rule this state of affairs is due to the feeding being a little too stimulating for a pullet in full production. I do not suggest that it is in any sense "forcing," but a hen in the natural laying season will find a diet which is normally correct a little too stimulating, hence the thin-shelled egg. Where birds have plenty of range at this season, it is inadvisable to give any animal protein, or at least unnecessary, as they will find abundance of insect life to meet their requirements. In any case, where there is trouble of this sort it is advisable to reduce the quantity of fish or meat meal for the time being.

To avoid delay Advertisements should be addressed to the Advertisement Manager, "Eggs," 94, Farncombe Street, London, S.E.16.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick Sussex.

TOE-PICKING.

Mr. C. Spiller writes:—"A customer of mine has found an easy method of stopping this. After one chick had been killed, and a dead set made on several others, their feet were covered with ink, and this stopped the trouble."

Toe-picking, as has been frequently explained before, is primarily due to the habit of the chick of pecking at anything bright. This explains why it is practically unknown except among the yellow-legged breeds, and is much more prevalent in bright sunny springs than in dull cold ones. We occasionally get an outbreak among the white-legged breeds, but in their case it is usually started by some accident, causing the feet to bleed. The method of cure described by Mr. Spiller is on a par with the blue-washing of the brooder house, which has so frequently been advised in these columns. We know now that it is merely a vicious habit, and is not caused, as was thought for years, by any deficiency in the diet. There have been comparatively few complaints this year, but in the sunny spring of 1921 they arrived by almost every post, and the losses were very serious on some of the large farms.

POULTRY AND BEES.

Mr. Spiller, who is an expert on Bees, makes the following comment on Mr. Madoc's article:—

> "In this week's 'Eggs' Mr. Madoc states that bees and poultry may be kept on the same plot of ground without fear of damage to either. I think, however, that poultry-keepers would be well advised to keep the bees away from the poultry, as I lost several pullets some years ago through them catching the bees, swallowing them, and getting stung internally. I, therefore, found it policy to move the hives away from the farm."

SOUR CROP.

A member writes to say that 75 per cent. of his pullets are suffering from sour crop, and he sends me a sample of wheat and one of a cheap meat meal. There is not much doubt that the cause of the trouble was the wheat, which was "smutty." "Smut" fungi sometimes causes inflammation and disease of the digestive organs, and it is very dangerous to use; presumably there is a good deal on the market at the present time, as several samples have been sent me, besides enquiries as to whether it can be safely used. Its sale ought to be prohibited as a poultry food. There is so much risk in buying damaged grain. Last year one of our members lost 75 per cent. of his chicks through buying at a sale a dry chick feed which had been stored for some two years. He admitted that it smelt a "little mouldy" when he bought it, but thought it wouldn't do any harm.

INTENSIVISM.

Our friends in the U.S. are keenly interested in the problem of successfully rearing large numbers of chicks intensively. A few small experiments have been made, but so far the results are not very encouraging. If one may venture an opinion, it is that they are making a mistake in tackling it, in the first place, as a dietetic problem. The bugbear, of course, is leg-weakness, and I gather that they attribute this mainly to a deficiency of vitamin A. It is a moot point as to whether the vitamins have any very important bearing on the problem. I fully realise that a deficiency of vitamins may be one of the causes of leg-weakness, but feel pretty confident that the real solution is not to be found in that direction. However, if the Council of the S.P.B.A. decide to carry out any experimental work this autumn and next spring, it may be induced to consider the problem of rearing chicks to the productive stage intensively. We may meet with little success in the first instance, but there are certain theories which are well worth investigating. It would be of the greatest economic value if we could once solve the problem of rearing chicks successfully on a large scale intensively, perhaps a season such as we have just passed through makes us realise it the more keenly.

IMPORTED EGGS.

I have received the following letter from one of our readers, and the question contained in the last paragraph is rather a pertinent one, as my correspondent says:—"These prices make the egg farmer feel sick," but it is not much good expressing ourselves in this way.

After all we have to remember that these prices are the result of a splendid organisation.

One fully realises that the Italian eggs do not equal the British new-laid, but we must remember that those eggs which are sent here are the "cream" of the Italian eggs, and the prices quoted are for first-grade eggs.

There is this other side of the question, too. We are an importing, and not an exporting country, and, consequently, all our eggs must go on the home market. Still, when one remembers the wonderful organisation of the egg market in Canada, and what is being done in France and other countries, we are hard up against the fact that it is only by real organisation that we can fight the foreign competition:—

" Dear Mr. Newman,—

WHY IS IT?

One of the interesting items in "Eggs" is the Market Report, and as a regular reader, I find therein much to reflect upon.

Taking last week's figures I note:—

EGGS.

BRITISH	13s. 0d. to 13s. 9d.
Danish	14s. 6d. to 15s. 6d.
Dutch	14s. 6d. to 15s. 9d.
Italian	13s. 3d. to 13s. 9d.

and even the unspeakable Chinese 10s. 6d. to 11s. 6d.

All this at a time when increased quantities of British and imported eggs are arriving.

No one would seriously suggest that Danish or Italian eggs can equal British new-laid, but yet they command (in the trade) prices which make me, as an egg farmer, feel sick.

Have the distributors and wholesalers banded together to try and do in the home producer?"

Yours faithfully,
MOCKBEGGAR."

NOTICES.

At an extraordinary meeting of the MIDDLESEX BRANCH of the POULTRY CLUB, it was agreed that an endeavour should be made to arrange a meeting between all Show Secretaries within the County of Middlesex, with a view to meeting one another, agreeing show dates, with the object of trying to prevent over-lapping, a general discussion on trophies that the Branch have to offer for competition, classes, standard, judging, and other important matters. Therefore, will EVERY SECRETARY please send his name and address to **Captain J. W. Smith,** Hearne House Poultry Farm, Hayes, Middlesex, as soon as possible, so that he may be notified of the date and place of meeting, etc.

THE LANCASHIRE UTILITY POULTRY SOCIETY.

INTERNATIONAL EGG LAYING TEST, 1923-24.

REPORT OF THE SEVENTH MONTH—APRIL 1st to APRIL 28th, 1924.

The report for the above month of four weeks is a very satisfactory and interesting one. It shows the birds are in good health and contributing well to the egg basket, as will be seen by exceptionally good yield of eggs; also the good pen and individual bird averages that have been made.

SUMMARY OF LEADING PENS.

HEAVY BREEDS.—SECTION II. LARGE BREEDERS (10 Pullets).

Pos.	Owner of Pen.	Eggs.	Points.
1.	Rodwell, R., Nelson	1401	1381
2.	Crabtree, W., Twiston	1304	1291
3.	Rogers, W., Market Drayton	1185	1244
4.	Hull, J. R. Thornton-le-Flyde	1129	1216
5.	Gabbott, H., Little Hoole	1260	1204
6.	Hamnett, W., Blackpool	1140	1200

LIGHT BREEDS.—SECTION I. LARGE BREEDERS (10 Pullets).

Pos.	Owner of Pen.	Eggs.	Points.
1.	Snowden, F., Cowling	1224	1251
2.	Metcalfe, G. B., Lechdale	1213	1231
3.	Aspden, R. H., Balladen	1108	1196
4.	Walmsley, A. R., Hollowforth	1143	1188
5.	Rodwell, R., Nelson	1167	1181
6.	Hollins, C. H., Chorley	1103	1143

HEAVY BREEDS. SECTION IV. SMALL BREEDERS (Five Pullets).

Pos.	Owner of Pen.	Eggs.	Points.
1.	Helms, J. E., Rossendale	646	693
2.	Purdie, J. and W., Lanark	695	694
3.	Greenall, S. and J., Carlton-Scroop	593	636
4.	Sudell, G., Bartle	660	625
5.	Collier, E., Ingol	616	613
6.	Clarkson, W. W., Haighton	572	615

LIGHT BREEDS.—SECTION III. SMALL BREEDERS (Five Pullets).

Pos.	Owner of Pen.	Eggs.	Points.
1.	Budd, C. F., Abergavenny	687	691
2.	Paul, Miss A., Coupar Angus	645	671
3.	Purdie, J. and W., Lanark	623	659
4.	Johnstone, Capt., Kingston H.	627	645
5.	Ingham J., Widnes	664	645
6.	Threlfall, B., Churchtown	608	605

HEAVY BREEDS.—SECTION VI. OPEN (Single Bird).

Pos.	Owner of Pen.	Eggs.	Points.
1.	Cook, R. N., Tarleton	137	162
2.	Crawford, J., Hurlford	138	146
3.	Rainford, J., Penwortham	138	148
4.	Wright, R., Kirkburton	133	141
5.	Hollins, C. H., Chorley	129	133
6.	Measures, W., Sharnock	125	139

LIGHT BREEDS.—SECTION V. OPEN (Single Bird).

Pos.	Owner of Pen.	Eggs.	Points.
1.	Wallis, A. V., Oxon	135	148
2.	McCoomb, J. S., Bracknell	131	138
3.	Sutton, J., Much Hoole	136	136
4.	Gonne, Capt., Ringwood	125	136
5.	Atkinson, T., Burton-in-Lonsdale	127	127
6.	Cockshott, Mrs., Skipton-in-C.	113	128

HEAVY BREEDS.—SECTION VIII. NOVICE BREEDERS (Four Pullets).

Pos.	Owner of Pen.	Eggs.	Points.
1.	Mills, R., Penwortham	492	512
2.	Marsden, G. E., Lostock Hall	491	492
3.	Tomlinson, M., Salwick	464	475
4.	Ronson, W., Preesall	477	482
5.	Hollins, C. H., Chorley	449	451
6.	Halsall, J., Newton	458	445

LIGHT BREEDS.—SECTION VII. NOVICE BREEDERS. (Four Pullets).

Pos.	Owner of Pen.	Eggs.	Points.
1.	Sharpe, T., Dumfriesshire	520	512
2.	Winward, W., Bamber Bridge	496	500
3.	M'Coomb, J. S., Bracknell	487	501
4.	Ormsby, Mrs. N., Lisburn	457	483
5.	Barker, A., Much Hoole	406	419
6.	Wallis, A. V., Oxon	476	482

BREED AVERAGES AND SUMMARY.

Breeds.	No. of Birds.	Eggs to Date.	Points.	Aver. Eggs to Date.
White Leghorns	516	53288	55315	103.25
White Wyandottes	329	35316	35886	107.70
Rhode I. Reds	125	12450	12987	99.55
Black Leghorns	56	5420	5555	96.65
Anconas	24	2012	2217	84.90
Light Sussex	19	1559	1651	81.92
Australorps	10	532	510	53.20
Exchequer Leghorns	6	482	483	80.33
Brown Leghorns	9	720	713	80.0
Barnevelders	10	701	808	70.10
Buff Rocks	12	1477	1560	123.5
Blue Mendels	4	305	324	76.25
Black Mendels	4	346	350	86.50

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package, and that of the paper in which they wish the reply to appear.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (**NOT from Capt. Leeney**).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

Mrs. B. H. (Wraxall). In reply to your letter. If your fowls are getting fat and lazy, then the only thing you can do is to alter the procedure of feeding. Instead of giving them two ounces of corn in the morning, which would necessarily make them lazy after such a full meal, give them half ounce in the morning in the scratching litter, two ounces of mash (weighed when dry) about twelve o'clock, and another 1½ ozs. of grain about half an hour before they go to perch. It is not surprising that your birds are on the fat side, as your mash is a little too fattening. Suppose you make it of :—1 lb. bran, 1 alfalfa, 4 middlings, 1 each Sussex ground oats and maize meal, and 1 meat and bone meal or fish meal. Continue to feed your chicks three times a day until they are five months old. There is no need to have a summer mash. If they are doing well on the present mash I should not change it. The mash should not be altered by the seasons, but by the bodily condition of the birds.

J. H. N. (Wisborough Green). The cockerels are too small for you to consider fattening them at present. Wait until they average 2½ lbs. in weight, then give them the following formula :—2 lbs. middlings, 1 barley meal, 1 ground oats, and half meat and bone meal or fish meal. If you can get sour skim milk it would be better to mix the mash with it, and omit the meat and bone meal or fish meal. You could, by way of a change, give cooked potatoes in place of Sussex ground oats in the same proportion. As a third feed, give either boiled wheat or rice. One of the greatest factors in fattening is for the birds to be kept as quiet as possible, and if the house is on the dark side this is all the better. You must continue your present method of feeding until the birds are fully enough developed.

B. M. C. (Aldborough). The mash is hardly suitable for chicks three months old and onwards. It would be better if you used :—3 bran, 4 supers, 1 biscuit meal or maize meal, 1 Sussex ground oats, half fish meal or meat and bone meal. In September reduce the bran to two parts and increase the fish and meat meal to one part, the parts are by weight.

G. D. (Banchory). You could dry the bread in the oven and crumble it, and use it in place of maize meal in the mash ; this answer would also apply to the biscuits, but the latter would not need to be placed in the oven.

Henwife (——). No, a high standard of laying in summer would not necessarily lead to decreased laying in the autumn and winter. The higher the standard of laying in summer—provided it is not due to too stimulating a diet—indicates more often than not that the bird will lay late into the autumn if allowed to do so ; if she then drops into a moult, the eggs laid before Christmas will necessarily be few. A low standard summer layer is generally a poor layer in her second year. (2) You cannot maintain an even body weight summer and winter by feeding alone, and if you could it would not necessarily ensure maximum egg production all the year round. The utmost that you can do is to see the ration meets the birds' immediate requirements; as, for example, a prolific layer will draw heavily on her reserve of body fat to form yolks. Should there be any deficiency in the ration this would become exhausted, and laying would become intermittent or cease altogether until she had accumulated more. That is why the successful feeding of the layer depends so much on observation, and is not a matter of rule of thumb. (3) It is most profitable to aim at a high level of egg production all the year round. As a rule your good winter layer is a good summer layer, but the reverse is not the case. (4) Birds should not be allowed to fall off in egg production in the summer, I think you have a mistaken idea. A diminished egg supply in the summer will not mean an increased autumn and winter yield.

J. H. (Denton). It is never advisable to run pullets and hens together. You should not put the pullets with the hens until they are at least six months old. (2) Chicks at three months old could be given adult grit, provided it is not too coarse. (3) I believe that nothing but limestone grit is used at the Bentley Test. (4) I think if you edited "Eggs" you would understand why it cannot be published twice weekly. Thanks for your appreciation of it.

A. W. (Spondon). If you ran the incubator right through at the temperature you mention it would probably mean premature hatching. This would result in non-absorption of the yolk and the mortality would be very high. (2) Keep your dry mash hoppers open all day, and see that the chicks have plenty of scratching exercise. (3) You must give me a more detailed description of the substance on the shell of the eggs. I cannot tell what it is. There appears to be no reason why they should not be suitable for hatching. (4) The best thing to put on the dropping boards is dry earth. (5) You could feed the grain as you suggest all the year round. One does not feed according to climatic conditions, but with due regard to the bodily condition of the birds. The method of feeding dry mash to fowls is simply to put the food before them in the hoppers and leave it. A good mash would be :—2 lbs. bran, 4 thirds, 1 each maize meal and Sussex ground oats, and 1 of meat and bone meal. Yes, I think the group system is the best way of mating for egg production.

L. N. (Binfield). The Sussex ground oats at 16s. 6d. cwt. are a good sample and good value for money. The oats are a little thin, but quite fair value at the money. Broad bran at 10s. is a really good sample, and much better than I have handled for many weeks at the price. The toppings are rather poor and contain a good deal of ground over bran. The wheat is a useful sample and the price fair. The maize meal is also good, and the grits. I think you have every reason to be well satisfied with the samples of foods you are getting, but I should try to improve on the toppings.

E. J. P. (Leamington). If your chicks are going on free range after a month old the best dry mash would be: 3lbs. bran, 4lbs. middlings, 1lb. maize meal, 1lb. Sussex ground oats. They would find abundance of insect life at this season of the year, and the addition of any animal food would not only be unnecessary, but inadvisable. I do not think it would be advisable to give the crushed oats to chicks of this age, even if you have winnowed them, to extract large husks. With regard to the cockerels, it would be rather better if you added one part barley meal and two parts middlings. You should not mix the food to a sloppy condition, as it is not so easily digested. It should be in a rather more moist condition than you feed to layers, not sloppy.

A. K. E (Witney). I cannot give you a reason why a small proportion of your chicks go lame, unless this is due to the soil conditions. I note you say that their feet crack across underneath the joints. It is just possible this may be constitutional, but I should think it more probably due to the soil.

A. H. F. L. (Forest Hill). In reply to your letter. Your pullets are rather late hatched, and I would not advise you to mate them next year if you can possibly avoid it. If you do so it will be better to mate them to an early-hatched cockerel, than to a second season meal. Further, I note that you say you could get a bird of the "Daily Mail" strain. That is not of the slightest value. You should buy him on his dam's record. You should, if you mate these pullets, do so at the beginning of March, and do not hatch after the end of April, as later-hatched chicks are often not so profitable. Provided the pullets are well developed and healthy, and you have a fair amount of range, a vigorous cockerel, mated with 15, should ensure good fertility. I cannot understand why the breeders refuse to give you my dry mash formula. There is no secret about it. It has often been published in "Eggs." The one you want is: 2lbs. bran, 4lbs. middlings, 1lb. each Sussex ground oats and maize meal, ½lb. dried yeast, and ½lb. meat and bone meal, or fish meal. That is the laying mash. If you join the S.P.B.A. you will receive a copy of the Annual Register (free), which will give you formulas from eight weeks upwards. I cannot tell you whether the house is sufficiently ventilated from your sketch, as you do not give any illustration, but it appears to be so. In spite of what your friend tells you about getting excellent results from breeding from pullets, it is a policy by no means to be advocated in your case where the pullets are late hatched. It is quite a different thing from breeding from pullets hatched in January or February

P. (Ore, Sussex). I am interested in what you say on this problem of incubation, and to find that your experience bears out my remarks. In answer to your question. In gas-heated incubators the atmosphere is usually much more dry than in those heated by oil lamps, and I think your failure in this particular case is due to the fact that there was insufficient moisture. It is borne out by the fact that there were several cripples, and the membrane was like parchment. You say that the second batch, lamp-heated, running at a temperature of 105, 104, and 103 you had a much better hatch, and the chicks were better. In answer to "C." The number of males to females depends a great deal on circumstances; 20 in a flock of 400 would be adequate, but if one male were mated to 20 hens the fertility would not be so high, particularly if the range was small. As a rule, in large flocks, one male to 20 hens is sufficient, but in small pens one to 10 or 15 is better. With regard to crowding: The best means to avoid this is to block up the corners, and, if possible, get the chicks on to the perch as early as possible. You can only prevent them pushing into one corner by filling it up with hay. Prices quoted are for birds which are known as "rough plucked." We are sending you particulars of the S.P.B.A. by post.

"Villager" (Dorset). One would hardly class the Australorp as a table bird, and the people in your neighbourhood must be rather optimistic to believe that they can get it to weigh 8lbs. or 9lbs. in about 12 weeks. It would not be equal, as a table bird, to the R.I. Red or Sussex, and owing to the dark legs and the black feathers, and the fact that the breast is not particularly good, one can only say that its table properties would be a secondary consideration. They were imported into this country certainly not for their table qualities, but rather as layers, and in this respect they have not quite come up to expectations. I have never heard of paraffin being prescribed in a mash for roupy colds.

POST-MORTEMS.

B. M. C. The hen was affected with generalised tuberculosis.

E. K. Internal haemorrhage, from rupture of degenerate liver.

E. F. The White Wyandotte cockerel was the subject of diabetes.

Mrs. A. K. F. Pneumonia was the cause of death, but one was lightly affected with coccidiosis also.

H. W. C. The chick had septic pneumonia.

H. J. P. The pullet had a broken egg inside and had strained to lay it and brought on pulmonary apoplexy.

M. S. B. Internal haemorrhage from rupture of degenerate liver was the cause in this case.

A. H. We do not find any infectious disease, but congestion of the lungs following on digestive failure and weakness.

A. E. A. Excessive production. Spilling of yolks in the abdomen, and collapse. Instead of giving salts once a week prescribe a day of fasting, and give a teaspoonful of salts between each half dozen every morning until tension is lowered.

E. L. C. The White Wyandotte hen was the victim of gout, which in birds usually brings the end by pericarditis or inflammation of the investing membranes of the heart, which (as in this case) assume a parchment condition and inhibit the action of the organ, instead of providing on the inside a lubricant, as in health. Gout may be recognised by the appearance of the serous membranes of heart, lungs, and liver, as if they had been dusted with flour. The material when examined microscopically and chemically proves to consist of minute crystals of urate of sodium. The remedy is to be sought in fasting and salines, and a change of food to something less stimulating.

A. C. It is very natural for all these questions to arise in your mind. Not all could be answered in our present state of knowledge nor can I possibly give such replies to each anxious querist. I have attempted a summary of the subject in this week's "Eggs," which you have evidently not seen, and which I would commend to your careful reading and consideration. Coccidiosis is ubiquitous, and I sometimes fear will be the death of the poultry industry unless some such system of saturation as I have suggested can be made practicable. My partner (Major Saunders, late Professor at the Toronto University) is studying the subject, with advantages I have never enjoyed, and I hope he will prove a great accession to our united efforts to deal with the plague. I think if I were you I would go heavy on the crude catechu only for a time, using 20 grains of the gum itself to each gallon of water.

Mrs. R. E. F. Pneumonia, but not of the infectious kind, was what the Ancona chicken was afflicted with. It should be remembered that pneumonia is as likely to be caused by foul air as by chill, and that a direct draught is only another name for the Devil. Crowding at night and in warm weather soon poisons the atmosphere; and most of us are overtaken by want of houses before we realise it.

M. A. G. The R.I.R. hen was the subject of apoplexy. She had a fine clutch of eggs coming on. The straining you observed was not due to any obstruction in the duct or cloaca.

D. H. P. One of these chicks had pneumonia, and the other coccidiosis. The gizzards were large and soft, and gave me the impression that they had not been developed by work, although there was wheat and a fair mixture of seeds in them.

P. M. There was no evidence of infectious disease in these chicks, but there was deadly pallor of the organs and musculature, as of some deficiency disease; want of vitamins, or constitutional feebleness. If temperature troubles, crowding, and bad air are at the bottom of losses at this age, there is usually some congestion of the lungs, and deep colour of the heart. None of these things were shown.

B. G. Yes, pneumonia caused by chill I should agree, as the additional symptoms of pneumomycosis or fungus infection were not present.

H. LEENEY.

THE NATIONAL UTILITY POULTRY SOCIETY AND THE UTILITY DUCK CLUB.

NATIONAL EGG-LAYING TEST, 1923-24.

PULLET TEST.

(Report for the Sixth Month—20th March to 16th April, 1924.)

The records for the sixth month were very satisfactory, and the high flock average of 20.24 eggs per bird will doubtless prove to be the peak of production during the current test.

The severe weather experienced during the first five months was all in favour of the heavy breeds, which hold a substantial lead, but with the improvement in the weather during the month under review the light breeds have more than held their own, and for the first time since the start of the test their monthly average is better than that of the heavies, the figure being 21.03 eggs per bird, as against 19.51 by the latter.

Broodiness, which had hitherto been very slight, became much more prevalent, and had considerable effect on the production of the heavy breeds, of which as many as 234 birds passed through the broody coops, against 11 only of the light breeds.

A further improvement in the size of the eggs is also to be reported.

Position.	Owner of Pen.	Eggs 6th Month.	Total to date.	Test Score.
	SECTION 1.—CHAMPIONSHIP (10 Pullets).			
1.	Snowden Frank	217	1010	1003
2.	Rogers, Warwick	226	1001	999
3.	Fowler, Miss M.	237	991	990
	SECTION 2.—WHITE LEGHORNS (5 Pullets).			
1.	Knight, Mrs. E. M. L. ...	127	580	578
2.	Welch, F. R.	116	575	575
3.	Baxter, David	99	522	522
	SECTION 3.—BLACK LEGHORNS (5 Pullets).			
1.	Snowden, Frank	111	571	567
2.	Hood and Sons, H. G. ...	107	512	512
3.	Moore, J. and A.	98	503	503
	SECTION 4.—NON-SITTING BREEDS (5 Pullets).			
1.	Reed, R. B.	114	483	483
2.	Thompson, J. H.	93	479	478
3.	Kingscote, Major E. T. ...	101	449	449
	SUB-SECTION 4a.—EXCHEQUER LEGHORNS.			
1.	Outhwaite, Sam.	90	351	347
2.	Cayley, Vice-Admiral C. ...	77	326	326
3.	Bloom, D. G.	82	264	264
	SECTION 5.—WHITE WYANDOTTES (5 Pullets).			
1.	Seddon, Harold	112	597	596
2.	Rayner, G. H.	112	572	572
3.	Clay, Mrs. M. E.	100	592	571
	SECTION 6.—RHODE ISLAND REDS (5 Pullets).			
1.	Salt, W. and T.	109	617	616
2.	Gawthropp, Arthur	83	519	519
3.	Hunt, E. G.	93	520	518
	SECTION 7.—SUSSEX (5 Pullets).			
1.	Bradbury, W.	116	546	545
2.	Rossall-Sandford, F. ...	109	510	510
3.	Welch, F. R.	109	465	465
	SECTION 8.—SITTING BREEDS (5 Pullets.)			
1.	Skinner, Miss K. B.	107	659	575
2.	Bell, Miss Harrison ...	95	540	539
3.	Wright, A.	83	510	510
	SUB-SECTION 8a.—AUSTRAL ORPINGTONS.			
1.	Parsons, H. R.	124	479	478
2.	Flowerdew, Frank	91	341	339
3.	Adams, Hon. Mrs.	98	456	326
	SUB-SECTION 8b.—BUFF ROCKS.			
1.	Bell, Miss Harrison	95	540	539
2.	Wright, A.	83	510	510
3.	Welch, F. R.	106	499	499
	SUB-SECTION 8c.—ORPINGTONS.			
1.	Simpson, Mrs. K.	86	486	485
2.	Morrison, D.S.O., Maj. J. A.,	111	459	459
3.	Fowler, Miss M.	91	570	553

BREED AVERAGES AND MONTHLY SUMMARY.

No. of Birds entered.	Breeds.	Month's Average.	Total to date.	Average to date.
713	White Leghorns	21.24	58707	82.92
179	Black Leghorns	20.21	14768	82.78
42	Anconas	21.57	3326	81.52
26	Exchequer Leghorns ...	18.52	1509	58.74
15	Silver Campines	20.13	908	60.52
10	Cuckoo Leghorns	22.80	837	83.70
8	White La Bresse	19.75	657	82.10
5	Black Minorcas	22.20	313	62.60
5	Buff Leghorns	22.25	350	74.45
1	Brown Leghorn	23.00	61	61.00
415	White Wyandottes ...	19.85	38485	94.11
321	Rhode Island Reds ...	19.65	26304	82.85
126	Light Sussex	19.17	10302	81.77
5	Speckled Sussex	16.00	364	72.80
70	Buff Rocks	18.19	6130	87.57
42	Australorps	19.90	2925	71.19
36	Buff Orpingtons	17.17	3106	86.75
25	Barnevelders	16.96	1373	54.92
10	White Orpingtons	17.30	649	64.90
5	Blue Orpingtons	22.20	459	91.80
5	Croad Langshans	21.40	659	131.80
5	Golden Barred P. Rks.	18.80	278	55.60
5	Golden Laced W'dottes	19.80	365	73.00
4	Marsh Daisies	22.75	249	62.25
2	Barred Rocks	23.50	191	95.50

Total Eggs Recorded, 173275; Eggs Unrecorded, 849; Total to Date, 174124; Sixth Month's Average, 84.45.

THE PERCENTAGE OF GOOD LAYERS AND THE AVERAGE OF THEIR EGG-PRODUCTION.

By Professor SALVADOR CASTELLO,
Director and Founder of the Royal Spanish Poultry School, and Executive President of the Second World's Poultry Congress at Barcelona.

One of the most important points in modern Aviculture is the obtaining of good layers, this being the object of the efforts of scientists, breeders and sellers of pedigree fowls capable of populating the farms of such persons who wish to dedicate themselves to egg-production for human consumption.

The natural predisposition plays an important part in the breeding of good layers, that is to say hens which lay 150 eggs or more, this being the minimum production entitling to the calification of a good layer, but the method or system of alimentation, the housing, the climate, and the treatment are also very important factors, and this is in all probability where the secret lies. Special attention should also be paid to careful selection, preferably by means of trap-nests, which are the only real means of eliminating the bad layers and perpetuating the blood of the good ones. It is unquestionable, however, that one who is guided by the results of laying competitions only cannot draw firm conclusions, because the animals taking part in these competitions are selected with the utmost care. They are fed on such a basis as to obtain the utmost production. They are housed better and under more favourable general conditions than usual, so that not all can be attributed to the excellency of the race or the abilities of the families.

If it were possible to collect data regarding a great number of hens of distinct races and families and kept under different conditions of housing and food, it would be a means of forming conclusions one way or another, but at least as far as world-known and generalised races are concerned, I think that the Canadians have obtained the best results during the last years.

I am referring to the bona-fide competitions or trials which are taking place among formal, trustworthy farmers in Canada, the egg-production of their hens being controlled on their own farms by inspectors specially designed for the purpose. Thus may be appreciated the racial, global and even individual laying qualities of different races, kept in distinct conditions, although under the influence of approximately the same climate, and always considering, of course, that the competitors are sufficiently interested not to falsificate their statement, valuable information may be obtained from which may be derivated practical instruction.

The report of the Department of Agriculture of the Canadian Government dealing with the results of the controlling of the egg-production on 121 farms belonging to a like number of poultry breeders all over the country, during the year 1921/22, having come into my possession, I decided to study same profoundly, and having now completed my work, I am now able to conclude:—

First. The predisposition for high egg-production (more than 150 eggs) for all the races which took part in the competition.

Second. The average production of the so-called great layers.

Third. The influence which artificial lighting and nocturnal feeding during the long winter nights have on the hens.

Fourth. The probable average of eggs among good layers.

ANTECEDENTS.

121 poultry breeders took part in the trials.

10.913 chicks were entered, of which, however, 3.521 were retired, 1,248 died, and 2,768 were disqualified for not having laid 150 eggs.

It thus results that 3,376 birds only were controlled, which is about 31 per cent. of the number entered, all of which were qualified as good layers.

The same figure for the previous year, viz., 1920/21 was 30 per cent., so that as far as farms are concerned, where selection is duly exercised, it may reasonably be taken that on an average about a third part of the number designed as good layers will result in real first-class producers.

This statement also agrees with the results arrived at on the farm of the Royal Spanish Poultry School at Arenys-de-Mar, during these last years.

PREDISPOSITION FOR HIGH EGG PRODUCTION.

Refer to Table No. 1, which has been made up with the details given in the report of the Canadian Government.

TABLE No. 1.—PERCENTAGE OF GOOD LAYERS IN WYANDOTTES, LEGHORNS, PLYMOUTH, RHODES, and OTHER RACES.

	LEGHORN.			PLYMOUTH.			WYANDOTTE.			RHODE ISLAND.			OTHER RACES.		
PROVINCES.	Birds taking part.	Laying more than 150 eggs.	Percentages.	Birds taking part.	Laying more than 150 eggs.	Percentages.	Birds taking part.	Laying more than 150 eggs.	Percentages.	Birds taking part.	Laying more than 150 eggs.	Percentages.	Birds taking part.	Laying more than 150 eggs.	Percentages.
British Columbia	1579	1012	64.0	317	205	64.6	333	235	70.5	95	52	54.7	44	14	31.8
Alberta	50	12	24.0	262	76	29.0	87	16	18.3	100	15	15.0	50	2	4.0
Sascatchewan	68	25	36.7	253	69	27.2	—	—	—	72	24	33.3	—	—	—
Manitoba	125	25	20.0	—	—	—	14	7	50.0	25	6	24.0	—	—	—
Ontario	1702	734	43.1	1122	364	32.4	285	114	40.0	14	1	7.1	—	—	—
Quebec	264	52	19.6	838	85	10.1	85	6	24.0	766	110	14.3	10	3	30.0
New Brunswick	81	8	9.8	187	63	33.6	—	—	—	—	—	—	—	—	—
New Scotland	30	17	56.6	80	18	22.5	—	—	—	—	—	—	—	—	—
Edward Island	—	—	—	50	6	12.0	—	—	—	—	—	—	—	—	—
Totals	3899	1885	48.3	3109	886	28.4	744	378	50.8	1072	208	19.4	104	19	18.2

It will be seen from this table:—

(A.). That the favourite race in Canada must be the Leghorn, because same was entered by eight provinces, while the total number of provinces taking part in the trials amounted to nine.

(B.) That the percentage of good layers was greatest among the Wyandottes, although the average production was higher in the Leghorns, as will be seen later.

After the Wyandottes with a percentage of 50.8, come the Leghorns with 48.3, the Plymouths with 28.4, the Rhodes 19.4, and finally hens of other races among which the Orpington and Ancona had percentages of 18.2.

This, as regards the global and racial proportion, let us now consider the individual performances.

Average production good layers: Among the 3,376 hens classified as producers of more than 150 eggs, there were twelve which excelled all the others, with an annual production ranging from 280 to 305 eggs, and, considering that of these twelve nine were Leghorns, as also the fact that the highest records were registered in birds of this race, it may safely be said that, in spite of the Wyandottes showing a slightly higher percentage in good layers, the Leghorns had the better of the competition, and not only among these twelve hens but also in conjunction, as will be seen in Table No. 2.

TABLE No. 2.—AVERAGE EGG PRODUCTION FOR EACH COMPETING RACE.

Races.	Oeufs Recueillis.	Pondeuses.	Moyenne par tête. Per cent.
Leghorns	366,121	1,885	194.2
Plymouth	167,926	886	189.5
Wyandottes	72,045	378	190.5
Rhode Island	38,129	208	183.3
Autres Races	3,155	19	166.0
Totaux	647,376	3,376	191.7

It will be seen from this table that the Leghorns attained the highest average, followed by Wyandottes, Plymouths, Rhode Islands, and in the last places the less popular races.

INFLUENCE OF ARTIFICIAL LIGHTING AND NOCTURNAL FEEDING.

The Canadian information species the farms which employed the system of nocturnal feeding, and those which did not, and with a view to make comparisons between these two systems, I have compiled the following:—

TABLE No. 3.—EFFECTS OF ARTIFICIAL LIGHTING.

	Sans Lumiere.			Avec Lumiere.		
Races.	Concursants.	Classifiees avec 150 oeufs.	Pourcentages.	Concursants.	Classifiees avec 150 oeufs.	Pourcentages.
Leghorn	1211	708	58	2688	1177	43
Plymouth	1484	406	27	1625	480	25
Wyandotte	674	358	53	70	20	28
Rhode Island ...	746	116	15	326	92	28
Autres Races ...	75	7	9	29	12	41
Totaux	4190	1595	38.0	4738	1781	37.5

There were 74 farms without artificial lighting, and only 47 with.

The above table clearly demonstrates that as far as the percentage of good layers is concerned, the artificial lighting and nocturnal feeding did not have any effect.

Regarding the average production the figures are as follows:—

1,595 birds, without nocturnal regime: Eggs, 309,030. Average per head, 193.74.

1,781 birds, with nocturnal regime: Eggs, 338,346. Average per head, 189.97.

It is seen that the average for hens, which are not being forced to winter laying, is a trifle higher than the average of the others, but the difference is so little that it is not worth considering; so much the more as the object of the feeding of the birds and lighting of their houses during winter nights, is not to increase their laying capacity in general, but to induce them to lay more eggs during the period when these are scarce.

PROBABLE AVERAGE PRODUCTION OF GOOD LAYERS.

If we turn back and examine table 2, made up of the total production of each of the 3,376 hens classified as good layers, we find that in spite of the hard winter in Canada, and no doubt as a consequence of an adequate diet, the general average of production among birds classified as good layers is as high as 191.7 eggs per head, with which average any breeder would be satisfied.

Final observations in favour of the southern races.

It is generally believed that it is not possible to obtain such good layers of the Meridional races, which are not by far so selected as the American races, which have now arrived at an amazing state of perfection. However, this is not so, and to confirm this statement we have only to observe how in France excellent results have been obtained with the Bresses, after having been subject to some careful selection.

In South America the Catalonian Prats have given controlled averages of 184, and among the Black Castilians averages of 150 are quite frequently met with.

Four Castilians sold to Mr. John Meekings, of the Watford Poultry Farm, at Herts (England) attained in 1921/22 an average of 217 eggs and 400 chicks, descendants of these gave in 1922/23 an average of 175, with records of 250.

A well-known common Spanish hen, the property of the Agronom of the town of Saragossa, Mr. Benjamin Conde, laid during its eight years' life, 1,168 eggs, with a record of 317 eggs in twelve months.

This proves that in all races with predisposition for laying, good and fine layers are found, so that the breeder who understands selecting and taking care of his birds can obtain excellent production with any one race.

All this is well-known to the majority of the delegates, but perhaps some of those who are now starting their avicultural activities may not know it, and that is why I have considered it opportune to give a resume on the occasion of our Second Congress.

FIFTH MIDLAND LAYING TEST.

SEVENTH MONTH—APRIL 20th to May 18th, 1924.

The heavy rain alternating with warm sunshine during this past month has been very beneficial, inasmuch that the grass runs have grown well, providing plenty of fresh green food for the birds.

This month shows an increase in broodies among the heavy breeds, with a consequent decrease in egg production. Birds which have been in the broody coop are Nos. 381, 339, 186, 162, 298, 263, 337, 382, 383, 60, 159, 230, and 307.

There have been seven deaths during the month, chiefly due to ovarian troubles. The numbers of the birds and the causes of the deaths are as follows:—

No. 435: Peritonitis.
No. 444: Peritonitis.
No. 24: Pericarditis (Implication following roup).
No. 431: Pericarditis (Implication following roup).
No. 114: Enteritis.
No. 397: Pericarditis, following roup.
No. 63: Internal haemorrhage from ruptured liver.

Sickness has been slightly on the increase, but has been successsfully coped with by individual treatment and medication of drinking water. No fresh cases have been reported lately. Birds which have been in isolation are Nos. 398, 35, 230, 109, 11, 145, 440, 116, 329, the trouble being mostly colds.

The corn ration has been decreased, and more mash given at mid-day. Feeding hours remain the same, namely, 7.30 a.m., 2.30 p.m., and 7.30 p.m.

The three Leading Pens in each section are:—

WHITE LEGHORNS.—No. 1: C. H. Hudson and Son, 412 eggs. No. 2: H. Boxall, 427 eggs. No. 3: E. Harrison, 420 eggs.

WHITE WYANDOTTES.—No. 1: H. W. Gee, 659 eggs. No. 2: Fowler Bros., 634 eggs. No. 3: S. and T. Greenall, 480 eggs.

R.I.REDS.—No. 1: Major Kingscote, 433 eggs. No. 2: Easton Poultry Farm, 444 eggs. No. 3: Miss M. Greham, 450 eggs.

LIGHT SUSSEX.—No. 1: Fred Gardener, 452 eggs; No. 2: F. B. Welsh, 400 eggs. No. 3: Mr. and Mrs. Jacobs, 356 eggs.

A.O.V. LIGHT BREED.—No. 1: M. H. Brady (Anconas), 424 eggs. No. 2: G. C. Woodbridge (Anconas), 631 eggs. No. 3: R. B. de Vere Packford (Black Leghorns), 322 eggs.

A.O.V. HEAVY BREED.—No. 1: H. Thomas (Buff Orps.), 395 eggs. No. 2: W. Hamnett (Buff Rocks), 312 eggs. No. 3: Major Shewell (Barnevelders), 318 eggs.

GLAMORGAN AGRICULTURAL COMMITTEE.

REPORT FOR EIGHTH MONTH.

HEAVY BREEDS. No. 1: J. Joshua, Tondu (R.I.R.) 418 eggs. No. 2: J. Joshua, Tondu (W.W.), 442 eggs. No. 3: J. H. Williams, Pontardulais (W.W.), 415 eggs. No. 4: Eaton and Poor, Pontardawe (W.W.), 413 eggs. No. 5: Howell and Phillips, Barry (R.I.R.), 352 eggs. No. 6: T. Rees, Ystrad Mynach (W.W.), 423 eggs

LIGHT BREEDS.—No. 1: Howell and Phillips, Barry (W.L.), 464 eggs. No. 2: J. R. Thomas, Barry (W.L.), 455 eggs. No. 3: C. Spiller, St. Fagans (W.L.), 455 eggs. No. 5: R. H. Davies, Radyr (W.L.), 440 eggs. No. 6: R. J. Evans, Abertridwr (W.L.), 445 eggs.

HARPER-ADAMS' AGRICULTURAL COLLEGE, NEWPORT, SALOP.

POULTRY LAYING TRIALS, 1923-24.

REPORT FOR THE SEVENTH PERIOD.

The Seventh Month (April 17th to May 14th) shows a decline in egg production, the average output being 111 eggs per pen of six birds, compared with 119 eggs for the previous month. The latter figure is the highest point reached, and the decline is seasonal. Pen 163 (Light Sussex) still leads the trials.

The weather has been exceptionally cold and wet, rain having been recorded on 22 continuous days. The health of the birds, however, has been uniformly good. The following are the leading positions in each section:—

SUMMARY OF THE LEADING PENS.

SECTION 1. WHITE LEGHORNS.—No. 1: H. Smith, near Sheffield, 775 eggs. No. 2: Major W. Hayland Wilson, Longparish, Hants 794 eggs. No. 3: J. L. Brown, near Bristol, 769 eggs.

SECTION 2. WHITE WYANDOTTES.—No. 1: Mrs. Alec Wilson, Garth, Breconshire, 771 eggs. No. 2: J. and W. Purdie, Lanark, 779 eggs. No. 3: The Misses D. and M. Keech, near Market Harboro', 769 eggs.

SECTION 3. RHODE ISLAND REDS.—No. 1: F. and A. H. Sanders, near Rugby 789 eggs. No. 2: G. W. Reeves, Whitchurch, Salop, 749 eggs. No. 3: R. Midwood, near Rugby, 713 eggs.

SECTION 4. SUSSEX.—No. 1: Col. A. Dugdale, C.M.G., D.S.O., Moreton-in-the-Marsh, Glos., 860 eggs. No. 2: Mrs. Alistair Robertson, Storrington, Sussex, 797 eggs. No. 3: W. M. Golden, Leire, Rugby, 764 eggs.

SECTION 5. ROCKS.—No. 1: F. R. Welch, Bewdley, Worcs., 780 eggs. No. 2: Capt. A. A. Plimpton, Beverley, East Yorks, 787 eggs. No. 3: L. A. W. Wright, Loxley, Warwick, 713 eggs.

SECTION 6. BARNEVELDERS.—No. 1: W. R. Partridge, Woodmancote, Cirencester, 623 eggs. No. 2: Miss C. E. Roads, Bletchley, Bucks, 590 eggs. No. 3: The Velderbresse Poultry Farm, Barnoldswick, W. Yorks, 551 eggs.

SECTION 7. BLACK LEGHORNS.—No. 1: Frank Snowden, Keighley, Yorks, 751 eggs. No. 2: G. B. Metcalfe, Lechlade, Glos., 707 eggs. No. 3: J. H. Hodkinson, near St. Ives, Hunts, 684 eggs.

SECTION 8. LA BRESSE.—No. 1: H. Durrant, Hurstpierpoint, Sussex, 678 eggs. No. 2: Mrs. Hines, Twyford, Winchester, 703 eggs. No. 3: The Purley Poultry Farm, Ltd., Surrey, 648 eggs.

SECTION 9. ANCONAS.—No. 1: W. Hamnett, Blackpool, 671 eggs. No. 2: F. E. Derham, Hilton, Derbyshire, 611 eggs. No. 3: S. Street-Porter, Isle of Ely, Cambs, 572 eggs.

SECTION 10. COLUMBIAN WYANDOTTES.—No. 1: S. J. Shepherd, near Bridgnorth, Salop, 643 eggs. No. 2: L. H. Wace, Solway Ash, Bridport, 618 eggs. No. 3: L. H. Wace, Solway Ash, Bridport, 586 eggs.

SECTION 11. ANY OTHER VARIETY.—No. 1: H. D. Howe (Black Minorcas), Stoney Stanton, 720 eggs. No. 2: The Ryhall Mill Poultry Farm (Brown Buttercups), Lincs., 624 eggs. No. 2: Longworth Bros. (Buff Orpingtons), Rawtenstall, 601 eggs.

EXHIBITION SECTION.—No. 1: A. Howard (Light Sussex), Maidenhead, 771 eggs. No. 2: W. Hamnett (Buff Rocks), Blackpool, 771 eggs. No. 3: Ouse Manor Farms (Golden Barred Rocks), Sharnbrook, Beds, 738 eggs.

SINGLE PEN TEST.

SECTION 1. WHITE LEGHORNS.—No. 1: Miss H. Baylis, Stratford-on-Avon, 149 eggs. No. 2: S. Street-Porter, Isle of Ely, Cambs, 151 eggs. No. 3: Allen Bros., Harrogate, 148 eggs.

SECTION 2. WHITE WYANDOTTES.—No. 1: C. W. Shepard, Malpas, Cheshire, 150 eggs. No. 2: E. Clough, near Lyme Regis, 165 eggs. No. 3: E. Watson, Earby, near Colne, 155 eggs.

SECTION 3. ANY OTHER LIGHT BREED.—No. 1: E. W. Shepard (Black Leghorn), Malpas, Cheshire, 146 eggs. No. 2: B. Robinson, (Black Leghorn), Spilsby, Lincs., 132 eggs. No. 3: G. B. Metcalfe, Lechlade, Gols., 127 eggs.

SECTION 6. ANY OTHER HEAVY BREED.—No. 1: B. Robinson (R.I..R.), Spilsby, Lincs., 151 eggs. No. 2: W. M. Golden (Light Sussex), Leire, Rugby, 135 eggs. No. 3: Major R. M. Woolley (R.I. Red), Barford Saint Martin, 139 eggs.

HANTS COUNTY LAYING TRIALS, FARM INSTITUTE, SPARSHOLT, WINCHESTER.

(Report for Seventh Period ending May 15th, 1924.)

SECTION A.

Temp. Pos.	Owner's Name and Breed.	Eggs Laid 7th Month.	Eggs Laid to date.	Total for Test.
1.	Mr. R. McKenzie (W.L.)	97	399	358
2.	Mr C. F. Rivaz (W.L.)	88	350	349
3.	Mr S. Wilkinson (W.L.)	80	348	343
4.	Mr. R. Hunter (W.L.)	78	379	331
5.	Mr D. W. Gunston (W.L.) (Pen b)	60	328	324
6.	Mr. D. F. Lawrence (W.L.)	94	342	311

SECTION B.

Temp. Pos.	Owner's Name and Breed.	Eggs Laid 7th Month.	Eggs Laid to date.	Total for Test.
1.	Capt. Harper (R.I.R.)	71	393	389
2.	Barford Poultry Farm (R.I.R.)	86	382	381
3.	Mr. J. H. Thompson (W.W.)	85	429	379
4.	Mr. S. Wilkinson (W.W.)	86	354	340
5.	Mr. D. W. Gunston (W.W.)	82	389	325
6.	Mrs. J. H. Drew (Buff Rock)	55	414	323

What our Readers and Advertisers think of "Eggs."

De Grey House, Garforth, Leeds.

"I am glad to say my trial advertisement in "Eggs" was highly satisfactory, as I sold the whole of the twenty pullets immediately. I am now enclosing an advertisement of Cockerels, which I hope will be as successful."

ALFRED HIRST.

"SOLD FIVE TIMES OVER."

Cot Poultry Farm, Hassocks Road,
Hurstpierpoint, Sussex.

"I shall be glad if you will withdraw my advertisement from the next edition of "EGGS" as I have **sold the articles five times over.**"

R. S. LEESON.

Correspondence.

LAYING TESTS.

To the Editor of "Eggs."

Dear Sir,—I wish to make a protest against some of your remarks in "Eggs," April 30th, under "Canadian Record of Performance Scheme." You say that: "It has been urged that we have the means at our command in the Laying Tests without setting up any new scheme of Registration and Inspection. With this view it is impossible to agree. An entry of four, five or six birds in a laying test is by no means the criterion of a man's stock—far from it. What he usually sends there are selected birds, and to be perfectly candid the selection is, in very many cases, far from being an advertisement for his stock, whatever records they may show in the test itself, and in many other cases are far above the average stock on the farm."

Re the Proposed Scheme: "The Inspector has not only to deal with the stock from a point of view of its handling,—but with due regard to its being typical of the breed and possessing health and vitality."

I would draw your attention to the carefully-worded Rule 5 of the National Egg Laying Test at Bentley, which states that "Any pen or bird insufficiently typical of the breed it represents, immature, diseased, or in any other respect unsuitable, will be returned."

In the *letter* sent with the numbering rings and the directions for sending birds, this paragraph is inserted:—"Your attention is specially drawn to Rule 5, respecting the health of the birds sent in, and competitors are warned that the closest scrutiny will be exercised on their arrival. If any birds are found to be unfit in any respect they will be returned at once."

Please also note under Special Prizes: "The 'Feathered World Cup,' subject to the condition that only pens passed by a duly appointed judge, as conforming to the standard fixed for the breed, shall be eligible for such a cup."

Two other silver cups will be awarded on the same conditions as above.

Surely, Sir, this may be considered an advertisement for, and the criterion of, a man's stock?

Laying Test birds are, of course, selected birds, and the owner usually has the parent stock, in which case he has the material for immediate improvement of the average of his farm.

As to Health and Vitality: " The closest scrutiny will be exercised on arrival."

If such an important Laying Test as the Bentley make such conditions of entry as *duly allow for health, and the pens and birds being typical*, I think it very unfair of you to say in your article: "That even a small number of birds in a Laying Test are NO criterion of a man's stock, and that his selection is, in very many cases, far from being an advertisement.

As it may be considered a cheap advertisement if I sign my name, Sir, it being evident I must have sent some birds to Bentley, having received the letter mentioned as to sending birds, etc., I beg leave to sign myself,

Yours faithfully,
" LAYING TEST."

We intended no reflection on the Laying Tests, when the article, of which our correspondent writes, was written. He must appreciate that in the Record of Performance Scheme the Inspector visits the farm frequently, and often stays there for two or three days, if necessary. This could not be done at Laying Tests. We are perfectly aware that some of the managers of our Laying Tests are endeavouring to exclude birds which are not typical of the breeds they represent, but if our correspondent had visited as many Laying Tests as we have he would not dispute the assertion that in a great number of tests the birds are not typical of the breed which they represent, even in the winning pens, and in spite of what he says we repeat that a small number of birds in a Laying Test are not a criterion of a man's stock.—(Editor).

COOLING.

To the Editor of "Eggs."

Dear Sir,—In your Editorial of January 2nd, 1924, in "Eggs" you take exception to the question of cooling or airing of eggs in the incubator, saying it would be endowing Biddy with reasoning powers to maintain she comes off the nest for the purpose of airing the eggs. While endorsing this statement I do not think the matter altogether ends there, and while not holding a brief for cooling, *per se*, it occurred to me there might be a side to the question which had been overlooked, and that some indirect benefit might actually transpire from Biddy's absence from the nest. We must not overlook the fact that Nature often works in a vicarious manner. For example, the bee nominally flits from flower to flower to gather honey, but at the same time it fertilizes them by means of the pollen adhering to its legs. In the same way, though the hen leaves her nest to feed, in all probability she benefits the embryo by allowing the shell to cool for a brief period.

After due incubation in my cranium the idea hatched out that there might possibly be a slight reduction in volume of the egg caused by contraction of the shell in cooling, and a rough calculation confirmed this opinion. As my mathematics might, however, not be above suspicion, I put the question to the practical test of actual measurement.

The system adopted was to immerse the egg in water of the same temperature as the incubator, and carefully measure the volume of water displaced. After wiping the egg dry it was allowed to cool for ten minutes, and then another measurement taken. This was repeated several times during incubation, and the mean of the several experiments showed a distinct contraction of the shell. The average of six tests on one egg, having a volume of 66 cubic centimetres, gave a reduction of 0.62 C/C after cooling.

Another egg tested eight times showed a decrease of 0.64 C/C, the initial volume being 66.5 C/C.

As the contents of the egg would not be materially reduced in temperature, and therefore volume during the experiment, the whole of the contraction would take place in the air space. A slight pressure of air inside would result during the cooling, tending to expel air from the egg, and vice versa there would be a decrease of pressure during the re-heating favouring the inspiration of air—in other words the egg would breathe every time it was cooled. When making these experiments I was told that the chick would be drowned, but as a matter of fact, although in one case the egg had been completely immersed in water for over a minute 16 times during incubation, the chick survived, and was one of the earliest to hatch.

Yours, etc.,
S. W. C.

VACCINES AND SERUMS.

To the Editor of " Eggs."

Dear Mr. Newman,—Before answering your questions I should like to ask you whether we have reached the millennium or a future life. I have always thought that one of the characteristics of this life is that our knowledge is partial and imperfect; that we are only "seekers after truth."

Is there any treatment for any disease that is always and invariably an infallible cure?

My letter did not deal with any particular flock. I meant it as an explanation of some general principle in vaccine treatment. But certainly I do think that in a sense a flock of birds can be compared to a single human individual, or, at least, to a family. In a homogeneous flock the birds are really one big family, being, if not all sisters, at all events cousins. And it is quite conceivable that any one family might have a particular idiosyncracy or susceptibility. Among human patients it does not often occur that the same treatment is given to every member of a family. Treatment is usually individual. One could not fairly compare treatment of 100 unrelated individuals living, perhaps, in 100 different towns with treatment of 100 members of one family. For that reason I should regard a flock as an entity.

If I found any particular treatment successful in 9 out of 10, or 19 out of 20 flocks, I should say it was successful in 90 per cent. or 95 per cent.of cases. I should not add up the individuals in each flock.

If any treatment failed in 250 out of 300 individual human cases, or in 250 out of 300 flocks of birds, I should not advise others to try it. When it succeeds in nearly all cases, and failure is only occasional, I should advise its trial. And this has been the case in the instances to which I referred.

In order to give proof of this, it would be necessary to mention names of patients or patients' guardians (i.e., the owners of the flocks), and that is not permissible without their leave.

As regards the 20,000 doses, it seems that there must have been something wrong, either to the particular vaccine used, or in the administration of it. But as I know nothing whatever about this, I cannot express any more definite opinion.

As to the meaning of "immunity." By *Natural immunity* I understand that there is something in the constitution of an individual which renders him unable to take any particular disease, as long as he remains in good health. By *acquired immunity* I understand that something has been put into the individual's body which renders him unable to take that disease, temporarily or permanently. Natural immunity is lifelong, unless some condition of ill-health breaks it down. Acquired immunity may last for a few weeks only (as in influenza), or for longer periods. In measles, scarlet fever, etc., the immunity produced by one attack is usually lifelong. Fowls are naturally immune to anthrax (woolsorters' disease). Even when the germs are injected into them they do not take the disease unless their vitality has first been lowered.

Mr. Newman's arguments would suggest that all medical treatment is valueless, because there is no treatment which is invariably infallible.

According to him the only department of medicine which should be supported is that of the medical officer of health, i.e., preventive medicine. Given perfect surroundings and perfect heredity, disease would not exist. Why build sanatoria for the treatment of consumptives? Instead of that, let everyone live in garden cities, give everyone healthy work and a salary sufficient to buy all that is needful, and at the same time *prevent the marriage of the unfit.*

I do not say this is not a counsel of perfection. But I do say that it is a practical impossibility, under present circumstances, and, while agreeing that the medical officer of health does most important work, I certainly think that the readers of "Eggs" would be very sorry if they had to do without the general practitioner.

No, Mr. Newman, we have not yet attained to absolute knowledge on any subject at all. When we have we shall have reached the millennium, and in the meantime it is fairly safe to say that those who are very cocksure, and who think that none can teach them, have so little knowledge of their subject that they cannot realise their ignorance.

E. KNIGHT.

To the Editor of " Eggs."

Dear Sir,—The omnipotent influence—biassed on the side of refuting use of vaccines and serums—which I anticipated your " leaders " would exercise on the lay poultryman's mind has been pointedly demonstrated to me on this island by three casual conversations with three different breeders on this island—one a small labourer, the second a well-known South of England poultry judge and breeder, the third a large scientific farm run by a Major and a Captain.

In each case, as soon as I mentioned inoculation as a means of curing D.R., they at once called my attention to your leaders' discouraging reports on the use of *vaccines.*

That is the point I wish particularly to bring to your notice, if I may. All the leaders so far have dealt with *vaccines*, with an occasional reference to *serums.* Witness your leader of this week, which deals with a *commercial* vaccine made in America, as a means of preventing *and curing* D.R. This is where your articles are leading people astray. I have pointed out in my circular that vaccines are primarily intended to prevent *and not cure*. (See Dr. Beach, of California). There is a certain school of medicine who attribute a curative property to vaccines, but they are in the minority. There is, therefore, little surprise that a vaccine *treatment* of D.R prove in the majority of cases fruitless.

Would it not, therefore, be kinder to the public to put this point before their knowledge, so that they may understand the difference between a vaccine and a serum?

Furthermore, with regard to American *commercial* vaccines (D.R.) I could show you a letter from: ——————* where these gentlemen say that the American *commercial* vaccines are useless, and that they themselves are not yet satisfied with their own State Experimental Stations' vaccines (which they are not allowed to distribute outside their own State).

I do not believe there is any other A.D.R. *Serum in* the world, than Biological Institute Miriems. That is why I have more faith in this Institute's preparations than in any other, and as this Institute's *vaccine has not yet been introduced to the British Isles*, I cannot see how you can condemn the use of all vaccines without this new one having been tested. A vaccine procured me through the medium of the institute, which at first I had been under the impression was actually prepared by them, is from some other source (French I take it), and has only been tried on one or two farms in England with moderate success.

In the example quoted in the previous week, I do not believe that purchaser of (was it) 2,000 doses purchased any of my *vaccine;* so there again, there was no comparison to make.

Monsieur Mincing is now preparing a new vaccine himself from Eye Cases and Cankerous Cases. He has himself found it very successful, and, although he will make *no guarantee* regarding percentage and success of its preventive value, he will guarantee that it can have no *ill effects*. I want this vaccine to be given a chance and tested over here. How can I do this if you discourage people from using these products?

V. S. V.

*Names of two well-known American Authorities, which we believe our correspondent would not wish published.—(Editor).

We shall be accused of prejudice and bias if we bring this discussion to a close without publishing the above letters, and although some of our readers may be tired of the controversy we must beg their indulgence a little longer, and ask them to consider the importance of the subject. The letter signed "V.S.V." is by a correspondent whose letters we have previously refused to publish because of the discourteous tone adopted. As the offending remarks have been withdrawn, there is no longer any reason for with-holding the letter.

In answer to Miss Knight's question as to the millenium, we would remind her that this has been preached by the charlatans and quacks, who had nostrums to offer to a gullible public, through the centuries, and not by those who were suspicious of their virtues.

We certainly do not think that a flock of 300 birds could be in any case compared to a single individual, and surely Miss Knight would not argue that even in a family all the individuals would be constitutionally the same. She regards a flock as an entity; if we had cited one flock as an example of the failure of vaccines, there would be reason in her argument, but we have given several, and the poultry-keeper has no means of knowing whether his flock has a particular idiosyncrasy or susceptibility.

Her excuse that she cannot give us proofs of the efficacy of vaccines, because that is not permissible without the leave of the owners is weak in the extreme. We asked for no breach of confidence, and it was not necessary to submit the owner's names. We will, however, undertake to produce one case of failure for every case which Miss Knight can produce in which she has secured immunity for a period of 12 months. We would also refer her to the letter of "A.B.C.," published in our issue of April 9th, as she is not unacquainted with this particular case, and may be able to offer an explanation.

Her definition of immunity is what we expected, and it is quite acceptable. What we want to arrive at from those who claim immunity by the use of vaccines, is how they determine whether immunity is conferred by the vaccine, or is merely a period of freedom from disease, due to the generally improved health of the flock We have known many outbreaks of diphtheric roup in flocks which have been stamped out, and no further outbreak has occurred.

It would be easy to retort to the concluding paragraph of Miss Knight's letter, but perhaps it will be better to ignore it.

The most damning evidence we have yet received as to the ineffectiveness of vaccines is contained in the letter from one of those who have most strenuously defended their use. "Subscriber," in recounting his experiences last week, states:—

> "(D) One house—600 pullets, all sisters to pullets in (A.) immune for three months; afterwards considerable trouble, **amounting in all to about 50 per cent. of them down at the same time or other over a period of four months, and finally cleared up.**"
>
> "I ought to say that the housing conditions in (D) were nothing like as good as they were in (A.), (B.), (C.)."

Further, he agrees that the record of his experiences with Vaccines is a bad one, and is not what he has a right to expect, and even admits there has been evidence of disease from vaccination. That is an argument against vaccines which we have never used, although we might fairly have done so, in the case of the letter from "A. B. C." referred to above.

With a few short remarks on "V. S. V.'s" letter we will conclude, and not bother our readers further. We think our readers fully appreciate the difference between a Vaccine and a Serum, and at no time has there been confusion between them on our part, and "V. S. V.," not many weeks ago, explained the difference in these columns himself. The writer refers to the leader in the issue of April 30th. This was a report, as will be remembered, of the "Poultry Farmer's Week" at Ohio State University, taken from the "American Poultry Journal." Commenting on this we said: "Here is the fact that this experiment was carried out by an acknowledged expert in veterinary medicine, assisted by a practical expert in poultry husbandry, conducted under conditions which must be regarded as satisfactory for a test of this kind. Vaccination did not secure immunity." There is no confusion between a vaccine and a serum here. If we had said that the vaccine did not affect a cure, then it would have been a different matter. The unreliability of vaccines is further illustrated in our correspondent's letter.

What he means when he states that he does not believe that the purchaser of 20,000 doses purchased any of his vaccines, "so there again there was no comparison to make," we are quite at a loss to understand. No one ever suggested they were his; as a matter of fact we do not know whose they were. If our correspondent cannot see how we can condemn vaccines without their being tested, surely it is illogical to advocate them without a test.

Surely the paragraph concerning the new vaccine now being prepared by M. Mincing is a little ingenuous. No guarantee can be given regarding percentage and success of its preventive value; all that can be guaranteed is that it will **have no ill-effects.** Then he goes on to say, he wants this vaccine **tested** over here, and asks how he can do this if we discourage people from using these products. We will acquit him of the desire to test this vaccine at other people's expense, and can assure him that nothing we can write will ever prevent the research worker from making a test of this kind, and we should be very sorry if it did; but the practical farmer might object to such a test being made unless he had a better guarantee than that it would cause no ill-effects. In conclusion we submit to our readers that not only have those who have defended vaccines signally failed to prove their realiability, but they have actually provided us with evidence in support of our contention that they are most unreliable, and further not a single shred of evidence has been adduced that serum treatment is in any way more effective than the old remedies used by our grandfathers.—(Editor).

CROOKED KEEL.

To the Editor of "Eggs."

Dear Sir,—With the object of getting to the root of the various problems which beset the average poultryman, your paper seems always open to encourage helpful discussion. I should be glad if you would grant me space for my lengthy letter dealing with a problem that, I think, needs more light thrown upon it, namely, the "crooked keel."

So many diverse opinions are from time to time expressed, that I for one would welcome those coming from men qualified to explain matters of a scientific nature.

We have men in our ranks with the speculative type of mind who are not content with a bare dogmatic statement. "How?" is to them the one interesting question. One may *believe* many things, and they may be perfectly true, but it is quite a different thing to *know*! If facts, as distinguished from belief, can be advanced showing that the "crooked keel" is one of nature's danger signals calling the breeder to halt, it were well that he should know it.

There are many reasons why a solution to the problem would be welcome. We are told it is due to a constitutional weakness, and birds with defective keels should not be bred from! Because of this and other dogmatic and unproven theories, a bar is raised to the sale of a crooked keeled bird, which, considering the number present in every poultryman's flock, represents a loss.

In South Africa a bird exhibited with this defect in the Utility Classes "must be passed." There is, however, one exception. All birds holding competition certificates, denoting they have laid a given number of 2oz. eggs, are exempt. Special classes are arranged for these. The above arrangement must prove a very puzzling paradox to many of our poultrymen. The ideal, as born in the minds of fallible man, must be perfect in keel. But in the case of the hen that nature has forced upon us through the single pen—Nature's fittest as exemplified by prolificacy—the deformity is permissible.

In competitions held here we often find a large percentage of the leading birds with crooked keels. As these hens must have possessed high physical conditions, it leaves one pondering as to where the "constitutional weakness" lies. If true, and she really ought not to be bred from, why exhibit her, and why the exemption for a defect that has for years been strictly taboo?

Suppose we take a view other than that of a "constitutional weakness," "Want of Lime Salts," "In-Breeding," "Too Early Perching," to name a few of the popular theories, and ask ourselves whether it may not be due to the influence of a change of structure on function, or to the principle, or law of correlation, wherein a change in one organ or set of organs is followed by a corresponding change in one organ or set of organs in some other part of the body.

We must remember that you cannot take an animal from one environment and place it in another, at variance with the former, without some slight, or a greater, modification of structure. Judging time, as understood in relation to the evolution of the world, our fowl a comparatively short while ago was slight in build and limb, laid its two dozen eggs or so per year, and was dependent to a great extent for its survival on its *powers of flight*!

Man then determines to domesticate it, and by supplying an abundance of food and general attention, renders the use of the wings negative, at the same time producing an environment for greater production. All poultrymen are conversant with the *external* change that has taken place from the jungle fowl to the various breeds we see to-day. I wish to go a little further in an endeavour to point out some *internal* changes in structure, one of which, I believe, *to be the elimination of the keel.*

Let us examine the most common theory advanced to account for the crooked keel, i.e., "want of lime salts."

When we look at a fowl, or any other living thing, we see an organic whole, but what makes it one is the various groups of cells, each group having its own particular field of labour. Some to form bone, others organs of locomotion, digestion, reproduction, etc.

The cell-group for the formation of bone, *bone corpuscles*, spend their lives in nourishing the bone surrounding them. Bone is a compound of two-thirds earthy material, principally phosphate of lime, and one-third animal principally gelatine. It contains also a little carbonate and fluoride of lime, and phosphate of magnesium.

These compounds must, of course, be present in the foods given to the growing animal. If a crooked keel is discovered, some poultrymen imagine these elements have been lacking in the foods. Let us, then, see if this supposition has any foundation in fact.

In the bone framework of a fowl there are, approximately, 50 denominated parts. When we meet with a defective keel, if the want of lime salts theory is to hold good we should expect to find traces of the lack of bone-forming elements in parts, or over the whole framework of the bone skeleton, but we do not! The question then arises, "Why do the bone corpuscles find ample material for the formation of perfect bone in all but one member and its correlated parts, i.e., the keel and the wing bones?"

Prof. Harrison Ainsworth gives examples of the elimination of the keel in the ostrich, the emu, and the osprey, caused, so he states, through "*the disuse of the wings.*"

Having this precedent from such high authority, may we not believe, with the evidence pointing to that conclusion, that the keel, breast muscles, and wing bones in the domestic fowl are also undergoing atrophy? That this appears to be taking place I shall endeavour to show.

We know that during the evolution of the species, many parts or structures of the body become useless, and nature in a very discriminating manner begins to eliminate them. No one will dispute that the wings of the fowl no longer function in the manner nature originally intended, i.e., for purposes of flight, and so they may be termed useless appendages.

For signs of atrophy, if we first examine the wing bones of the domestic hen, we discover they are lighter by weight than the corresponding wing bones of wild birds of similar size. They are also lighter in colour. The shafts of the wing bones of a wild bird plainly show the blood vessels and contain some fat, *marrow*. Very little of this is evident in the wing bone shafts of the domestic fowl.

When, however, we compare the leg bones of both the wild and the domestic fowl, the quality, size, and healthy appearance is in favour of the latter, showing that good healthy bone is lacking only in a *disused* part of the same animal. If we next examined the breast muscles—the motive power for wing movement, and again compare these with the wild fowl, we find a great difference in the colour and texture. In the domestic fowl the flesh is of a pale colour, soft, stringy, yielding, and shows a diminished flow of blood to these parts, apparently due to the lessened action of the muscles. On the other hand, the muscles of the wild bird consist of separate bundles, all united together by the covering skin, presenting a blood-red healthy appearance, due, one can only think, to being sensitised by frequent use. When we carry the comparison further, and examine the leg muscles, or any portion of the flesh other than the breast muscles, we observe a similarity in that healthy, full-blooded appearance, showing animal life and the spending force which are set in action by nerve impulses through constant use.

We next arrive at the offending keel itself. We know that the keel was evolved for the attachment of the breast muscles. If we allow that the muscles are wasting away, then, by that inter-dependent principle of development and suppression that exists between co-related parts, what is true of one must be true of both.

The evidence that this is the case seems clear when we examine the deformed keel. We must believe this deformity is due to the lack of minerals in nourishing that part, but we should not stop at that statement. Instead we should ask the question: "Why the neglect of the keel, when the elements for the formation of good bone were present to build the remaining skeleton, and particularly say the sternal ribs to which the keel is attached?" Does it not appear that there is a purpose behind it, or an illustration of the influence of a change in structure on function?

I have heard it stated that breeding for prolific egg-production is the cause. Yet the defective keel is invariably found with turkeys. One cannot consider them prolific layers.

Regarding the theories of too early perching or in-breeding as possible causes. In respect to the former it may be well to remember that no bird perches at an earlier age than those in a wild state, yet, in them, a deformed keel is the rare exception.

As to in-breeding. It is doubtful if any animal is more in-bred than those in a wild condition. Yet it does not appear to be a fruitful cause for defective keels. On the other hand we have plenty of evidence that crossing, even of distinct breeds (domestic) does not eliminate the deformity. In-breeding is like a two-edged sword, it cuts both ways and intensifies good qualities as well as the bad. By in-breeding among crooked keeled stock, that character would become more and more pronounced with each successive generation. But if we in-breed from straight-breasted stock this quality would at least be checked.

The latter contention opens up an interesting question. It is well-known that if there is increase in one part of the animal there will be decrease in some other part of the same. In the fowl it appears that the muscles that controlled locomotion in the front part of the body (wing movement) have grown relatively less, and those that govern locomotion in the hinder parts of the same have increased (legs). At the same time the hinder part of the body, including the reproductive organs have increased to a remarkable degree in the present-day laying hen. If we persist in eliminating crooked keeled birds and breed only from perfect keeled stock, might we not set up an inhibiting force to egg-production?

It is evident that an equilibrium of the organisation can only be attained by the arrangement of its elements in strict accordance with the laws of correlation. If the wings of their related parts are useless, by insisting on perfect keels in our breeding stock, the retention of this single character may involve re-arrangement of the egg-laying characteristics, and this may result in the transposition of latent characters which generate ataire tendencies.

In conclusion, let me say I have sought to account for processes by formulating theories based on the few facts that have come my way. I do not consider my remarks the last word on the subject, but offer them, hoping that others may point out any flaws if my theories do not account for the origin of the defective keel.

It is to the ever-growing spirit of research and curiosity that all progress is due, so that what a few years ago was obscure is now becoming clear. Should I be favoured with replies, I trust the distinction between the attitude of belief and that of knowledge is kept clear.

Yours sincerely,

"HOW?"

LANCASHIRE POULTRY FEDERATION'S EGG-LAYING COMPETITION.

The report for the seventh month (April 6th to May 3rd) in the Lancashire Federation of Utility Poultry Societies' 12 Months' Egg-Laying Competition has just been issued by the Secretary, Mr. E. Collier. The light breeds are penned at Mr. H. Hayes' Farm, Tottington, who reports one death from liver disease. All the other birds are in good health, but several are showing signs of broodiness. During the 28 days 86 birds have laid 20 eggs or over each. The following six have laid 26 eggs each: Nos. 1, 48, 96, 99, 100 and 112; bird No. 100 has laid 52 eggs in 56 days. Nos. 17 and 24 have 25 eggs to their credit, whilst several have produced 23 and 24 eggs each during the month.

The heavy breeds are penned at Mr. W. Hamnett's farm, Blackpool, who reports all birds in good health and laying satisfactorily. Broodiness has been heavier this month than previously, 35 birds being affected. The highest record is still held by a R.I.R. with 167 eggs in the 196 days; three Wyandottes have laid 151, 152, and 153 eggs respectively, whilst ten others have 130 eggs or over to their credit, and 50 others over 100 eggs each. The leading R.I.R. has laid 27 eggs in the 28 days, and three top Wyandottes have laid 26 eggs each during the month. Pens that have lost two birds during the test have their records deleted from the monthly reports; this also applies to birds dead in the single bird section. The scoring this month is four points for a first-grade egg of 2oz., and three points for second-grade egg of 1¾oz. The positions are as follow:—

LARGE BREEDERS' SECTION.

LIGHT BREEDS (3 birds).—No. 1: W. Barron, 290 eggs, 1450 pts.; No. 2: W. Braithwaite, 293 eggs, 1399 pts.; No. 3: R. Rodwell, 268 eggs, 1291 pts.; No. 4: S. Street-Porter, 253 eggs, 1214 pts.; No. 5: J. Hamer, 251 eggs, 1205 pts.; No. 6: H. Sutton, 255 eggs, 1195 pts.

WHITE WYANDOTTES.—No. 1: R. Moon and Son, 365 eggs, 1837 pts.; No. 2: R. Rodwell, 343 eggs, 1699 pts.; No. 3: C. C. Humber, 353 eggs, 1643 pts.; No. 4: T. Gardner, 345 eggs, 1640 pts.; No. 5: W. Barron, 386 eggs, 1628 pts.; No. 6: E. Cam, 329 eggs, 1589 pts.

A.O.V. (HEAVY BREED).—No. 1: W. Wearden and Sons (R.I.R.), 368 eggs, 1883 pts.; No. 2: R. Green (R.I.R.), 367 eggs, 1794 pts.; No. 3: T. Braithwaitte (R.I.R.), 376 eggs, 1687 pts.; No. 4: R. Moon and Son (R.I.R.), 349 eggs, 1632 pts.; No. 5: J. Rainford (R.I.R.), 362 eggs, 1593 pts.; No. 6: H. Sutton (R.I.R.), 313 eggs, 1450 pts.

SMALL BREEDERS' SECTION.

LIGHT BREEDS (Single Birds).—No. 1: H. Tattersall, 89 eggs, 432 pts.; No. 2: F. and H. Evans, 83 eggs, 409 pts.; No. 3: J. Smith, 82 eggs, 406 pts.; No. 4: W. L. Holding, 69 eggs, 328 pts.; No. 5: A. Spencer, 67 eggs, 322 pts.; No. 6: W. J. Swarbrick, 73 eggs, 318 pts.

HEAVY BREEDS.—No. 1: W. Fletcher (W.W.), 147 eggs, 695 pts.; No. 2: T. B. Grice (L.S.), 112 eggs, 532 pts.; No. 3: S. B. Lonsdale (W.W.), 107 eggs, 505 pts.; No. 4: A. Spencer (W.W.), 128 eggs, 475 pts.; No. 5: T. Windle (W.W.), 106 eggs, 432 pts.; No. 6: A. H. Brain (W.W.), 88 eggs, 429 pts.

POST MORTEMS—Continued.

C. F. S. This hen was the subject of gout. A typical case in which the gouty deposits on the heart membranes led to their thickening, dryness, and rigidity, preventing the organ from functioning properly, and finally arresting it altogether. The short illness observable does not by any means represent the time or duration of the disease, which would be weeks at any rate. If you are in the habit of reading these reports, you will have seen several references to the fact that fowls may carry mortal lesions without apparently being "off colour," and feed just before they are found dead. A fast should be prescribed, and a daily dose of 15 or 20 grains of glauber salts.

J. H. B. The lump in the thigh was confined to the muscles, and would not render the body unfit for human consumption.

L. J. No, not cloacitis or other infection. The pullet had a disease of the ovarium from whence septic matter was passed into the circulation. There was a fully-matured egg which she could not pass, and the straining to do so caused the discharged mucus around the vent, which you thought might be vent gleet.

L. J. H. The chicks had pneumomycosis or infectious inflammation of the lungs, caused by the spores of fungi; chiefly those of Aspergillus fumigatus. Iron in the drinking water and other tonics may help to confer immunity, but no treatment of those affected is of use. Prompt destruction and disinfection is advised. Dead bodies should be burned, as should all swept-up litter.

V. L. (Hants). The liver was degenerate and the kidneys acutely inflamed.

A. C. S. The obstruction which led you to operate on the crop was lower down. The glandular stomach and the gizzard being both packed hard and paralysed. The knife was not necessary, nor can you with a single dose move a serious obstruction. If you would give repeated doses of medicinal paraffin, you would gradually permeate the mass, and the feeble efforts of the tired muscles might then serve to carry on the ingesta. After each dose the crop should be manipulated, to change the position and composition of the obstructing material. Such massage helps also to restore function.

G. S. The Light Sussex chicken was the subject of generalised blood poisoning, due to the absorption from the body cavity of a free yolk which has decomposed.

W. P. W. The duckling was affected with pneumomycosis or the infectious disease of the lungs, caused by the spores of fungi; chiefly those of Aspergillus fumigatus. Iron dissolved in water and mixed with food is a help.

F. R. The gosling showed no marked evidence of disease, but from your description of the symptoms there is little doubt that the trouble is infectious cerebro spinal meningitis, which leaves no sign after death. While incapable of producing the disease, cold and damp, by lowering the bird's resistance would be predisposing causes.

C. B. Your cross-bred hen was the victim of peritonitis, following the failure of a yolk to enter the egg canal. There was nothing in the way of treatment that would have been effectual.

M. M. S. The chick had no signs of infectious disease. There was haemorrhage into one lung and in the central portion of the abdomen. These conditions would be consistent with the trampling which you observed.

Miss W. S. The Light Sussex cockerel was one of those that "couldn't stand beans," as is said in another connection. He could not appropriate and profit by the rich fattening food, and his liver was degenerate, kidneys inflamed, and he was unable to digest.

Small Holder. Despite your mangling of the corpse in bungalow fashion, it was evident that the bird had pulmonary apoplexy, and that an egg from the clutch had been loose in the belly, crushed, and causing peritonitis. You ask for a book that will give instructions in the making of post-mortem examinations, but you first need to learn what the normal fowl should look like, and this information is given in Dr. O. Charnock Bradley's "Structure of the Fowl," published by A. and C. Black, Edinburgh.

W. B. S. The hen was the subject of a generalised peritonitis, caused by the decomposition of yolks that had been produced too rapidly to gain entrance to the oviduct. This is the penalty that only too often over-productive hens have to pay.

B. S. Bedale. The three chickens you sent were the victims of acute nephritis, the kidneys being gorged with blood and the canals blocked with urates. No doubt the unfavourable climatic conditions have been a factor in helping to bring about this condition, but I am of the opinion that the food is rather too stimulating. In order to reduce tension and promote elimination, give a teaspoonful of glauber salts to every six chicks in the morning mash for a week.

W. F. M. We are inclined to agree with you that the recent inclement weather was the culminating point as regards the three chickens sent for post-mortem, as all three showed congestion of the lungs. They all had at some time suffered from coccidiosis, from which they were recovering, one having well-marked secondary lesions in the liver. They were all the subjects of rickets, and this, in addition to the above-mentioned disease, would naturally predispose them to lung troubles when exposed to wet and cold. We are of the opinion that the precautions you have already taken as regards hygiene, combined with better weather, will lower the mortality to a more normal figure. As there were no signs of any specific bacterial infection we did not consider a laboratory examination necessary, the more so that it would have been next to impossible to have obtained a pure culture so long after death, as saprophylic bacteria rapidly invade the blood and organs.

E. C. H. This hen had a chain of egg tumours weighing 16½ ounces. Nothing, of course, could have been done.

Anxious E. S. Bad time-keeping was the trouble. More yolks matured than could get into the tube, and were pushed adrift and broken in the abdomen, and set up peritonitis. She was not fat.

G. P. R. A fully-shelled egg, was broken and had set up inflammation of the uterus. She was otherwise a perfectly healthy bird, and her case must be regarded as in the nature of an accident. The recording of the cause in this case does not help to elucidate the reasons for other losses. Possibly insufficient material for building shell has been supplied. On the other hand good layers with a record sometimes fail in the shelling glands to apply the material although to hand.

I. R. D. B. Acute generalised peritonitis was the cause of her illness. It is not an infectious disease.

H. LEENEY.

SCIENTIFIC POULTRY BREEDERS' ASSOCIATION.

APPLICANTS FOR MEMBERSHIP.

Batten, Mrs. K. M., "Beechiff," Meadowcourt Road, Leicester.
Chapman, W. K., Bramley Wood, Sutton Valence, Kent.
Stanton, Miss, Holley Bush, Bishop's Castle, Salop.
Tombazes, Mrs. H. G., Broadfield, Port Glasgow, Renfrewshire.
Jacobs, C., "Backwoods," Lindfield, Hayward's Heath.
Wright, Ed., Woodcroft, Folly Lane, Hockley, Essex.
Bailey, W. H., "Vega," Grange Estate, St. Leonards, Ringwood, Hants.
Lloyd, Colour Sergeant A. H., Orderly Room, The Barracks, Brecon, S. Wales.
Searson, Arthur S., Woodfield House Farm, Pease Hill, Ripley, Derby.
Carter, W. L., Lion House, Downham, Norfolk.
Miers, W. H., "The Hawthorns," Broad Lane, Bradmore, Wolverhampton.
Potter, A., "Rosebank," Cemetery Road, Great Clacton, Essex.
Horler, G. H., "Nuthurst," Utility Poultry Farm, Woodcote Road, Caversham, Oxon.
Martin, Cecil, Diamond Bungalow, Pear Tree Lane, Hempstead, near Chatham, Kent.
Sanguinetti, Major W. C., D.B.E., M.C., Alor Star, Kedah, Malay States.
Skinner, H. L., Rose Cottage, St. Merryn, near Padstow, Cornwall.
Kirk, Wm. H., Frewin's Close, South Stoke, near Reading.
Timmins, T. B., Easter Balbarton, Kirkcaldy.
Mason, Geo. J., Beachamwell, Swaffham, Norfolk.
Armstrong, Mrs. B., The Grove, Cambridge.
Baillie, Mrs., Hyndshaw, Carluke, N.B.
Collins, C. W. D., 28, Vale Road, Portslde, Sussex.
Savory, Miss E. M., Emberton House, Olney, Bucks.
Harker, Mr., Marrylands, Heathfield.
Nash, Mrs. C., Station Cottage, Winchfield.
Smith, Leonard, 112, Gillott Street, Birmingham.

THE NATIONAL POULTRY COUNCIL AT BIRMINGHAM.

There was a comparatively small attendance of delegates at the Special Meeting of the National Poultry Council, held in the Town Hall, Birmingham, on Thursday, 6th June, the President, Mr. Stanley Street-Porter, being in the chair.

The Council received a very hearty welcome from the Lord Mayor, who said that he understood the Poultry Industry had to fight keen foreign competition. He hoped that the Council's work would be of such value that this competition might be fought successfully, so that eventually this country might be able to produce all the eggs and poultry required. He referred to the scope of the work of the Council, embodying, as it does, the large Commercial Egg Farmer, the "hobbyist" and "backyarder," such as were found in Birmingham, who contributed their quota, and so helped the industry and the nation, inasmuch as they assisted in making the country self-supporting.

The President, on behalf of the Council, thanked the Lord Mayor for his kindness in attending the meeting and extending such a hearty welcome to the Council.

The Lord Mayor, in reply, stated that the allotment policy of the City Council was to obtain land wherever possible. It might interest them to know that they had 22,000 acres of agricultural land, but they were fast encroaching on it for housing purposes. Their planning scheme, however, was done with due regard to the furtherance of the allotment scheme.

Letters of regret were read from Mr. A. T. Walker and Dr. Crowther, who were unable to attend owing to illness. The Secretary was instructed to write a letter of sympathy to each of these gentlemen.

The report of the Executive Committee to the National Poultry Council was as follows:—

As the present is an additional meeting of Council in order that the report of the Special Constitution Committee may be considered and any amendments to the Constitution that may be agreed upon shall be presented to the forthcoming National Poultry Parliament in July, a lengthy report from the Executive is not required.

Affiliations.—The following applications for affiliation have been received and approved:—Heathfield and District Poultry Keepers' Association, Ltd.; the White Wyandotte Club.

Finance.—The Treasurer's report and draft balance sheet for 1923-24 will be submitted, together with recommendations from the Finance Committee, which are commended to the consideration of the Council, as the question of its finances is of the greatest importance.

Sub-Committee.—A report will be presented of the Joint Parliamentary and Marking of Imported Eggs Sub-Committees together with report of interview with Agricultural Committee of the House of Commons.

Income Tax.—A large amount of correspondence has taken place with regard to assessments for Income Tax, and information given to poultry-keepers who have been assessed under Schedule D. It is satisfactory to record that in several cases heard Local Commissioners have decided that poultry is husbandry within the meaning of the Acts of Parliament, and that they are farmers to be assessed under Schedule B. A most notable case is that of Mr. S. G. Hanson, of Basingstoke, who has won in his appeal before the London Commissioners, who decided in his favour. It is stated that the Inland Revenue will not contest cases which are to be brought before the London Commissioners. The Executive suggests, therefore, that poultry farmers should appeal to London and not Local Commissioners where operations warrant the additional expenses involved.

Income Tax.—The Secretary reported that as the result of an interview with Mr. Letter, K.C., it was recommended that where operations were large enough appeals should be made to the Special Commissioners, and not to the Local Commissioners The main thing is to have the case in proper order, so that, in the first place, it is best to consult headquarters.

Treasurer's Report.—The Treasurer reported that at the moment they had a credit balance of £124 9s. 1d. He referred to the very generous help of the S.P.B.A., and stated they had a helpful contribution of £50 from the Midland Federation. He also referred to the useful help given by the N.U.P.S., and the Lancashire Utility Poultry Society. The National Poultry Diploma was now self-supporting. The growth of the expenditure, particularly the increase of printing costs was an indication of the development of the work of the Council. He mentioned the great moral effect of the Legal Defence Fund. Both the Inland Revenue Authorities and the Local Authorities were well aware of the existence of this fund. One requisition of £1,300 had been paid to the Ministry of Agriculture in respect to the National Poultry Institute Scheme, and further calls were expected. The report was adopted.

The report of the Special Committee to consider the revision of the Constitution was considered, and these, with certain recommendations by the Executive Committee, were adopted.

Marking of Imported Eggs.—The President stated that the Parliamentary Committee had interviewed the Agricultural Committee at the House of Commons, and had been most favourably received. Mr. Stanley Street-Porter had drawn attention to the increased growth of the industry, and appealed for assistance in the trade facilities given to Co-operative Egg Producers to enable the glut to be taken off the spring market and preserved. Mr. A. T. Walker had spoken of the Merchandise Marks Bill, and had explained the attitude of the Council towards it.

Mr. Edward Brown had spoken on the question of Income Tax and Rating, and pointed out the hardship of some poultry-keepers being assessed under Schedule D., instead of the Agricultural Rate of Schedule B. Some of the Local Rating Authorities were refusing the poultry-keepers the concession which had been granted the agriculture of local rating. The Agricultural Committee received the deputation in a most sympathetic manner, and were obviously impressed with the arguments which had been placed before them.

Mr. Brown mentioned that during the last month between 50 and 60 letters had been received in respect to Income Tax and Rating.

The National Poultry Institute.—The Secretary announced that work had been commenced at Addlestone and at Cambridge on Nutrition and Breeding. The Northern Breeding Station has been completed. Members of the Advisory Committee that visited Rease Heath had been highly impressed, not only with the locale, but in the way the work had been carried out. The work of the Southern fattening station was going forward. In order to meet claims which have not been provided for another £735 may have to be raised.

Mr. Brain asked for information in reference to money allocated for disease investigations. The pathologists in Birmingham believed the medical profession could give more help to poultry-keepers, more especially in regard to B.W.D. and Coccidiosis than could the veterinary profession. The President stated the money had been allocated and the scheme approved. The Research work necessarily took a long time, and the public must not be impatient. He could not agree with what Mr. Brain had said with reference to the Medical and Veterinary Professions. Sir Stuart Stockman had won a world-wide reputation, and he had very capable assistants. Colonel Hardy said that as a bacteriologist he had been to Addlestone, and had every confidence in the preparations there, and in those who were in charge of the work.

Restrictions by Local Authorities.—A letter was read from the Ministry of Health in connection with the refusal of the London County Council to permit poultry-houses to be built higher than 5 feet. The Ministry of Health had stated that they had no power to interfere. Mr. Slade suggested that steps should be taken to approach the London County Council, and this was agreed to.

The World's Poultry Council.—The President and Vice-President, as representatives of the Council at the World's Poultry Congress, made their report to the Council.

Coolnel Sandbach moved a resolution expressing the appreciation of the National Poultry Council as representing all branches of the Poultry Industry, of the services of the British Congress Committee and its officers in organising so magnificent a display of British Poultry at the Exhibition recently held in connection with the Second World's Poultry Council at Barcelona. It is further desired to pay a tribute to the generosity and public spirit of Mr. and Mrs. Dewer in contributing and issuing the British Handbook to the Exhibition, which volume is, in itself, a notable production and one of great permanent value. The resolution was seconded by Mr. Oscar Brown.

He also paid tribute to the splendid work of Mr. Clem Watson, who had charge of the birds exhibited, and referred to the fact that many exhibitors had stated that their birds on return were in a better condition than when they were sent out. He also spoke appreciatively of the services rendered by Mr. T. R. Robinson.

Before the resolution was put to the meeting Mr. Tom Newman asked permission to say a few words of appreciation of the great services rendered to the delegates by Mrs. Rawson. He was sure that everyone would appreciate her kindness, patience and courtesy. The resolution was adopted amid applause.

The President informed the Council that it was definitely decided that the Third World's Poultry Council would be held at Ottawa in 1927. He asked for an expression of appreciation from the Council to the Ministry of Agriculture for the invitation which had been sent for the congress to be held in this country in that year, and for the prompt manner in which they had dealt with it, and explained that that invitation had been withdrawn on the ground that it would have brought the mother country into conflict with one of the dominions, and also as the two congresses had already been held in Europe, and the members of the congress in the United States and Canada amounted to 51 per cent., they had, in reality, a greater claim than we had. Further, it was most desirable that when the congress was held in this country it should have the whole-hearted support of the Dominions and the United States, and he thought that in withdrawing they would obtain this.

Mr. Francis' action had been very highly approved by the Canadians, and the delegates from the United States, and there was no doubt that the right thing had been done.

The National Poultry Parliament.—The Secretary reported on the arrangements of the National Poultry Parliament, to be held at Salisbury on July 15th to 18th.

Dr. Raymond Pearl had promised to speak on the first afternoon of the Parliament.

The Secretary reminded members that all resolutions to be submitted to the Parliament must be received by him before June 7th.

As the hotel accommodation would be limited those who wanted reservations should notify Mr. Brown at once.

Fox Raids.—A letter was read from Mr. Palmer, of Wrexham, in which he stated a fox had been and destroyed 87 valuable pullets. These had been locked up, but the fox had dug underneath the house. He held the land from the Ministry of Agriculture, and his agreement was that all sporting rights were reserved for the Ministry. The hunt refused to pay any compensation, as they said they never hunted over the ground.

It was agreed that the Secretary should be instructed to take the matter up with the Master of the Foxhounds' Association.

A letter from Mr. Bell, of Prince's Risborough, was read, in which he complained of damage done by a carted stag, which, with the hounds, broke through and did damage to the amount of £21 10s. He had received an offer of £5 as compensation.

The Secretary was instructed to write to the hunt and ask them to pay compensation for the full amount, and if they refused to do so, inform them that the Council would have to take action.

Mr. Fletcher Hearnshaw proposed a vote of thanks to the Lord Mayor and Corporation of Birmingham for the hospitality extended to the Council, and recalled that the Preliminary Committee meeting which led to the formation of the Council, were held at Birmingham. This was seconded by Mr. Moore amidst applause.

The delegates were kindly entertained to luncheon at the White Horse Hotel by the members of th Midland Federation. Mr. Broughall extended a very hearty welcome to the delegates, and remarked how sorry he was that they had not been able to spend more time in Birmingham, and give them a little help and encouragement.

The President, on behalf of the Council, thanked Mr. Broughall and the Federation for their kindness, and promised that at some future date they would see whether they could not give them some assistance.

BRIGHTON STOCK TEST REPORT FOR APRIL, 1924.

HEAVY BREEDS SECTION.

WHITE WYANDOTTES.—R. Mummery (9), 892 eggs; W. F. Morris (12), 1038 eggs; Countess Buxton (5), 520 eggs; Mrs. Crooke (4), 400 eggs; W. Crabtree (10), 1015 eggs; Brighton (8), 640 eggs.

R.I. REDS.—Craig Gallon (8), 487 eggs; McLeod (9), 933 eggs; Mrs. Russell (6), 518 eggs; R. Saunders (7), 679 eggs; S. Simmins (10), 916 eggs; Capt. Woodford (14), 966 eggs; Capt. Tomlinson (9), 832 eggs; Miss Clark (10), 609 eggs.

LIGHT BREEDS. SECTION.

WHITE LEGHORNS.—Bradbury (14), 1511 eggs; Craig Gallon (15), 1146 eggs; E. Coles (10), 1104 eggs; Chisbury Farm (17), 1298 eggs; Stanley Street-Porter (18), 1606 eggs; B. Glendenning (17), 1298 eggs; Mrs. H. Kent (18), 764 eggs; Sweet-Escott (19), 1350 eggs; David Brown (18), 1348 eggs: Amsden Brothers (17), 1462 eggs; D. Gunston (16), 1550 eggs; Miss Maddison (18), 966 eggs; Miss Ransford (14), 1402 eggs: Court Farm (17), 1363 eggs.

ANCONAS.—Brown's Poultry Farm (9), 717 eggs.

BLACK LEGHORNS.—Mrs. A. Stuart (10), 837 eggs.

JOHN H. DOWDEN.

Heathfield, Sussex.

S.P.B.A. FOOD SCHEME.

To the Editor of "Eggs."

Dear Sir,—With reference to your S.P.B.A. Food Scheme, it seems incredible that there is a lack of support in the industry.

I am sure there are many of us who base our hopes of the future on the rapid advance of Co-operative effort.

Recently I have made every effort to sound the ideas of the farmer, and, whereas I cannot say that the general farmer shows much enthusiasm, I have found the greatest enthusiasm amongst the poultry fraternity.

If only to stimulate thought amongst your readers, may I be allowed to suggest a possible means of starting a branch.

The system I have in mind in this particular neighbourhood is to have the food sent to a central station. Arrangements will then be made with the local carrier to deliver to those who wish it. Probably the larger farmers will prefer to collect their own. In any case the clearing from the station should not prove a great difficulty.

In order to make a start, I have signified my willingness to collect and collate orders, and provided members will help by placing, say, monthly orders I do not foresee much extra work. Under any circumstances the saving would more than recompense.

Every week I see the prices of food stuffs and compare these with my food bill. Often do I think of that house which I ought to put up and which would be possible if only I could save the difference in the two prices.

Perhaps you could assist matters by giving us some idea of the saving which would be effected on, say, a 5-ton lot, delivered, say, 50 and 100 miles from London.

I cannot believe that the new disease, "Sleepy Sickness," is getting a grip of the industry, so possibly the lack of enthusiasm is due to real and imaginary difficulties.

If this is the case perhaps some of your readers will air their opinions and give those of us who are keen an opportunity of discussing matters.

I give my name and address in the hope that you may find room in your paper, and that this may catch the eye of enthusiasts in the Lambourn Valley.

Yours faithfully,
L. JUDKINS.
Barretts Farm, Eastbury, Berks.

East Devon Branch, S.P.B.A.

Re OTTERY FAT STOCK SHOW, POULTRY CLASSES.

"Eggs," June 4th.

Dear Mr. Newman,—With reference to the above and the newspaper cutting I sent you, I should be glad if you would allow me to correct two errors which would tend to give a false impression.

1. In my address to the Fat Stock Show Committee, I stated that I was of the opinion that my members had some of the finest stock in the West of England, and to the best of my knowledge and belief I did not mention any particular district, which would have been most unfair to the majority of my members.

2. With regard to the proposed "Secretary's Cup," I am afraid I must own up to having stated that I personally was prepared to put up the Cup in question and not my members, as up to the present I have not approached them for their support in the matter of prizes; but, as I told the Fat Stock Show Committee, I felt sure my members would not be found backward when it came to the question of a prize list.

In conclusion, I might mention that the question of amalgamation between the Fat Stock Show and the East Devon Branch, S.P.B.A., refers only to the Poultry Show in conjunction with the Fat Stock Show.

Yours sincerely,
HERBERT M. JELLEY (Capt.),
Hon. Sec., East Devon, S.P.B.A.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 6th JUNE, 1924.

GRAIN AND FEEDING STUFFS.—British wheat is practically nominal, supply and demand being very small. Imported wheat meets a fair trade, at somewhat irregular prices; No. 1 Manitoba is dearer at all markets,realising 11s. 2d. to 11s. 5d. per cwt., as compared with nominal quotations of 11s. 9d. to 12s. per cwt. for British. In the absence of home-grown barley, imported grinding descriptions sell steadily and prices are higher, Karachi averaging 33s. 4d. per 400 lbs. (9s. 4d. per cwt.). English oats are a dull trade at late rates, and imported are als odull. Maize is cheaper.

Trade for bran is very dull at lower figures, but middlings continue to meet a good trade, the average price per ton being £8 15s. as compared with £7 12s. in the corresponding week last year. Oil cakes are a quiet trade, although not abnormally so for the time of year.

MILLERS' OFFALS.—Bran (British): Bristol, £7 7s.; Hull, £6 2s.; Liverpool, £6 10s.; London, £6 15s. Broad Bran: Hull, £7 2s.; London, £8. Middlings:—Fine (Imported); London, £9 7s.; Coarse (British): Bristol, £9 5s.; Hull, £9; Liverpool, £8 5s.; London, £8 12s. Pollards (Imported): Bristol, £8 2s.; Hull, £7 5s.; Liverpool, £7. Rice Bran: Bristol, £7 10s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £10 15s.; Hull, £10 1s.; London, £10 10s. Maize Meal: Bristol ,£12; Hull, £10 16s.; Liverpool, £10 5s.; London, £11 10s. Maize Germ Meal: Bristol, £10 15s.; Hull, £10; London, £9 2s. Maize Gluten Feed: Bristol, £11 5s.; London, £9 7s.

EGGS AND DEAD POULTRY.

A moderate trade is passing for the heavier offerings of English eggs, and quotations remain firm, while Irish eggs are a shade dearer. The better grades of continental are in short supply, but good quantities of other imported eggs are on the market and sell at about late rates. Supplies of poultry are improving, but last week's prices are about maintained.

Week-end Prices—Eggs (per 120): British: 14s., 13s. 3d.; Irish: 13s. 6d., 13s. 3d.; Danish: 16s. 6d., 14s.; Dutch: 16s. 3d., 14s. 6d.; Polish: 11s. 3d., 10s.; Belgian: 14s., 13s. 6d.; Italian: 14s., 13s. 6d.; Egyptian: 9s., 8s. 9d.; Lithuanian: 11s. 3d., 10s. 6d.

Dead Poultry (per lb.): Fowls—Surrey: 2s. 9d., 2s. 4d.; Irish: 2s. 2d., 1s. 10d.; Others: 2s. 3d., 1s. 10d. Ducks: 1s. 10d., 1s. 7d. Geese: 1s. 4d, 1s. 2d.

EGGS.

Per Doz.—Ashford: First, 1s. 4½d.; Second, 1s. 3d. Birmingham: First, 1s. 3d.; Second, 1s. 3d. Bridgwater: First, 1s. 2½d.; Second, 1s. 0d. Carlisle: First, 1s. 4d. Chelmsford: First, 1s. 6½d.; Second, 1s. 4¾d. Denbigh: First, 1s. 3d.; Second, 1s. 2d. Derby: First, 1s 3d. Dorchester: First, 1s. 2¼d. Exeter: First, 1s. 3d. Guildford: First, 1s. 7d.; Second, 1s. 4d. Hereford: First, 1s. 1d. Hull: First, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 3d. King's Lynn: First, 1s. 2d.; Second, 1s. 0d. Lincoln: First, 1s. 3d. Llandilo: First, 1s. 1d.; Second, 1s. 0d. Newport (Mon.): First, 1s. 3d.; Second, 1s 2d. Norwich: First, 1s. 1d. Oswestry: First, 1s. 3d. Penzance: First, 1s. 2d.; Second, 1s. 1d. Salisbury: First, 1s. 4d.; Second, 1s. 3d. Shrewsbury: First, 1s. 2d.; Second, 1s. 1d. Skipton: First, 1s. 1d. Truro: First, 1s. 3d. York: First, 1s. 4d.

FOWLS.

Per lb.—Birmingham: First, 1s. 9d.; Second, 10d. Derby: First, *6s. 0d.; Second, *4s. 0d. Exeter: First, 1s. 9d. Hereford: First, 1s. 9d. Ipswich: First, 1s. 10d.; Second, 1s. 8d. Lincoln: First, *5s. 0d. Llandilo: First, 2s. 3d.; Second, 2s. 0d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Truro: First, 1s. 4d. York: First, *5s. 0d.; Second, *4s. 6d.

DUCKS.

Per lb.—Birmingham: First, 1s. 10d.; Second, 1s. 8d. Exeter: First, 1s. 8d. Hereford: First, 1s. 7d. Llandilo: First, 2s. 4d.; Second, 2s. 2d.

* Per Head.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, June 18th, 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. TOM NEWMAN, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

PEDIGREE.

What constitutes a pedigree? In a recent issue of "Eggs" Major Lethbridge asked this question. As there has been no response, he has asked that it should be repeated in the hope that some of our readers will endeavour to answer it. Surely its importance must be realised.

It is common enough to receive catalogues, in which a man describes himself as a "pedigree" breeder, or a "breeder of pedigree stock." But what exactly does he mean? It will be agreed that the word is too loosely used, and a clear definition is required. The dictionary definition is "a line of ancestors; lineage; a genealogy; a genealogical or family tree."

This does not help us much, for a mere line of ancestors is of no value, unless we know that they are good and of the right kind. To be of real value to us as breeders, we ought to know what their special characters were, if we are negotiating for the purchase of the son of a "Lady One-a-Day," and the breeder withholds the fact that 50 per cent. of her eggs are on the small side, or that the percentage of hatchability is very low, then obviously we have only a mere record of eggs laid, which, other important particulars being with-held, does not constitute a pedigree. Then what of the sire? Shall we be satisfied with the fact that he is the son of a 300-egg dam? The dam may have been the daughter of a mere sprinter, with no ancestry behind her, consequently the progeny of "Lady One-a-Day" may have very little value as breeders.

Again there is the destruction of pedigree. Assuming we start with a pen with individual records, mated to the son of a dam with a record of 250, and we neglect to trap-nest the progeny, can we continue to describe our stock as "pedigree bred" or ourselves as "pedigree breeders?" Most assuredly not, yet it is of common occurrence for such stock to be so described.

Let us take another case of destruction of pedigree. Assuming that we have a line of pedigree layers, and for some reason think it to our advantage to cross with pedigree exhibition stock, what has happened? Our selection in each case has been for certain specific characters. The characters in the one case will be inimical to those in the other, and it will take some six generations of careful individual selection before we succeed in eliminating the characters which are undesirable, and "fixing" those which we wish to perpetuate. Until this has happened we can hardly describe our stock as "pedigree," for the crossing of two strains bred for entirely opposite purposes must necessarily involve the mixing of characters in either which are undesirable to either.

Cross-breeding, of course, involves the complete destruction of pedigree, although we shall get into hot water for saying so—it is, nevertheless, true.

But all this does not answer the question as to what constitutes a pedigree. That question is put to our readers, and we venture to hope that they will endeavour to find a satisfactory answer for Major Lethbridge.

FAIR TRADE RISK.

During the past breeding season several letters have been received at this office asking for advice under the following circumstances. The writer has bought from a breeder eggs for hatching, or day-old chicks, as the case may be. These on arrival have been found satisfactory. Eggs have hatched up to 80 per cent., and chicks have looked the picture of health. These statements have actually been made by the writers of two of the letters, but within a week the apparently healthy chicks begin to die at a rate which alarms the buyer. Some are sent to an expert for post-mortem examination. The verdict is the dread Bacillary White Diarrhoea, and the buyer, learning that this disease is hereditary, writes for advice as to the possibility of a claim for compensation. Claims have been made for:

(1) The purchase money. (2) Potential profit. (3) For infection of chicks on the farm. It is necessary to add that these complaints relate not only to B.W.D. but also to Coccidiosis.

However much one may sympathise with the unfortunate buyer, it must be recognised that if these claims were to be entertained the position of the breeder would become untenable. His implied contract with the buyer is to supply hatchable eggs and live vigorous chicks, and if he is to be held responsible for what occurs after he has complied with this implied contract then the very existence of the industry would be threatened, for no breeder could possibly transact business under such conditions. If one could prove culpable negligence on his part, then it would be an entirely different matter.

If we consider B.W.D., for example, we are told that this disease is hereditary. Whether this is conclusively proved or not we are not in a position to say. How is the breeder to know whether he has "carriers" in his flock or not? The reliability of the blood agglutination is disputed. Sir Stuart Stockman, speaking at Blackpool last year, said the technique was faulty, and for that reason the test could not be relied on. Certain evidence which has come into our hands supports this contention. Hens which have been tested and declared infected, have been bred from, and nothing but healthy chicks hatched. On the other hand, birds which have been declared free from the disease, on both the male and female side, have produced chicks which have died from B.W.D. In numerous cases post-mortem reports have stated that the deaths were due to B.W.D., and complaints have been made of breeders. It would be safe to say that in 50 per cent. of these cases these post-mortem reports are incorrect, and that they have been made by individuals who are not competent to express an opinion. Is the breeder to be at the mercy of these individuals?

If we may venture an opinion, the buyer must be prepared to abide by the implied contract that the breeder guarantees to supply him with hatchable eggs, and with live, vigorous chicks, which are to the best of his knowledge and belief bred from healthy and vigorous stock. If this contract is so far observed, the buyer must recognise that the breeder has no further responsibility. The buyer must be prepared to take a *fair trade risk*. One can understand the natural irritation when heavy losses are sustained, but if we may offer a little further advice to the buyer, it is that he should approach the breeder courteously, and not make extravagant claims for compensation, which may be interpreted as an attempt at blackmail.

THE ULSTER POULTRY INDUSTRY.

The report of the Ulster Poultry Industry, which appears in another column, makes interesting and instructive reading. That part relating to the main provisions of Mr. Archdale's Egg Bill more particularly. It indicates that the Government of Northern Ireland is fully alive to the importance of the industry, and recognises that the effective organisation of the marketing side is very necessary to ensure its prosperity.

Scientific Poultry Breeders' Association
Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick, Sussex.

THE PRECOCIOUS PULLET.

I am moved to write again on the above subject, because of the fact that eight letters were received by one post enquiring what is to be done in the case of early-hatched pullets, either laying or "threatening" to lay, as one lady correspondent puts it. How many times I have written on this subject and given the best advice I can it is hard to say, but the letters come by every post in spite of it.

We are all aware that the early-hatched pullet develops at a faster rate, in spite of the less favourable environmental conditions, than does her later hatched sister. The probability is that this is due to her having been hatched from a better egg—that is to say, one which has not been depleted by over-production of certain constituents essential for the development of a vigorous and healthy chick.

Now let us remember that the reproductive organs develop with the body; the ovary is not, as some poultry-keepers appear to think, something which nature "hangs on" when a certain stage of growth is reached. Such being the case, it must be obvious that any attempt to check the development of the reproductive organs must result in a check to bodily development, and this is often permanent. Early maturity or precocity, call it what you will, is very largely a matter of inheritance, it is correlated with high fecundity, and we have developed it by selective breeding. It is hardly correct to say that it is stimulated by a favourable environment, it would be more correct to say that it responds to it, just as it is retarded by an unfavourable one; and, believe me, the latter is far more often the case than the former.

If your pullets show a tendency to "redden up," do not reduce the quantity of food, or endeavour to check them by bulking the mash. This may be done to such an extent that the appetite may be satiated without the pullet being able to derive sufficient nourishment from the food, with the result that you may get a spindly-legged creature which is ruined for egg production. You must feed for bodily development, otherwise you will get a small bird and small eggs. Do not feed maize in any form to birds which you wish to keep from laying too soon; it has a tendency to lay on internal fat, and your heavy producing pullet will turn this into yolks of eggs. As an egg producer maize is superior to all the grains or meals because of its high fat content, which the pullet uses to form yolk. In the case of the poor layer, she, of course, merely turns it into body fat. When the pullet begins to lay; bodily development is too often checked; there is no surplus of food for both production and development. While it would be fatal to attempt to check laying, it is equally so to encourage it, consequently only one course can be followed. Feed heavily, but don't feed for eggs; cut out maize entirely, rely mainly on good oats as the grain feed, and replace the maize in the mash with ground oats. It the birds are on free range they will not require any animal food; if they are not, 5 per cent. in the mash will be sufficient. These remarks, of course, only apply to the early-hatched and precocious pullets.

BLOOD SPOTS.

Every day I am answering questions as to blood spots in eggs, the cause and the prevention. As in the case of the precocious pullet, the cause has been explained many times before, but still they come.

These questions are far more frequent during the flush season, and may be explained thus:—

When a hen is laying heavily the ovary is plentifully supplied with blood to promote the rapid formation of ova. As a yolk sac ruptures to release a yolk, some blood may escape from a congested blood vessel of the sac. The blood passes into the oviduct with the yolk, and is incorporated with the egg. The size of the blood spot will, of course, depend on the amount of blood which escapes. These spots are often taken for pieces of meat or liver, and on one occasion I was asked whether the bird was suffering from diseased liver. There is no practical means of preventing these blood spots; if we could detect the individual hen we could remove her from the flock, and by feeding sparingly and perhaps giving a mild dose of Epsom salts stop the trouble, but a flock cannot be treated for an individual. It is an awful nuisance, but beyond taking care that the feeding is not stimulating there is nothing to be done as far as our present knowledge goes.

POST-MORTEMS.

As announced last week, it has been found necessary to revise the rules relating to post-mortem examinations, and may I here beg members to do their utmost to observe the new rules. In spite of the fact that the rules are always printed at the head of the "Answers to Queries" column, with the explicit direction that the bodies and the fees should be sent to Capt. Leeney, there is scarcely a week goes by without someone sending to me. Sometimes I get the bird and the fee, sometimes the bird only, and sometimes the fee only. I can't find any record of the bird being sent to me and the fee to Capt. Leeney. Hundreds of letters of appreciation of Capt. Leeney's services have been received, but there are many of our readers who do not understand the rules, and are under the impression that membership entitles them to a free report. On one occasion 21 chicks and on another 17 were sent, and a report expected for 2s. 6d. Let me remind members that a reliable post-mortem examination is not made by a cursory examination of the intestines; it needs care and specialised knowledge, and after the body has been disposed of and the report written, there is not much in it for the expert, for no salary or other remuneration attaches to the post. The change of rules is based on the following points:—

> One fee prevents misunderstanding and confusion.
>
> The sender of a carcase receives a reply by return of post, which enables him to take action and save much valuable time in the case of infectious disease—and quite the majority of poultry ailments are communicable.
>
> The great appreciation of the services rendered by this department of "Eggs" has made it necessary for Captain Leeney to have more help with the bacteriological investigations and with such doubtful cases as require confirmation by qualitative analyses (quantitative ones cannot ordinarily be undertaken), and he has been fortunate enough to obtain the co-operation of Major C. G. Saunders, D.S.O., who before the war held the appointment of Professor of Anatomy and Surgery at the Toronto University, and specialised on avian pathology.

Modern Poultry Feeding.

By TOM NEWMAN.

THE PULLET FEEDING EXPERIMENTS AT WELLINGHAM.

Pen "C" still maintains its lead; indeed, has slightly increased at the completion of the eighth period of four weeks.

The position is now as follows:—

Pen A (12 per cent. fish meal).—Total eggs, 1,218. Month, 185.

Pen B (6 per cent. fish meal).—Total eggs, 1,198. Month, 198.

Pen C (3 per cent. fish meal).—Total eggs, 1,419. Month, 210.

Pen D (Control).—Total eggs, 1243. Month, 172.

One bird died on the eighth of the month in Pen A as the result of an accident, and one on the 14th in Pen D from protrusion of the oviduct. One bird has now been lost in each pen. It will be remembered that in the control pen the source of animal protein is milk. Several readers have written to say that they are getting first-class results on the formula used in Pen C, but I must again remind them that this is a purely experimental mash, and is by no means set forth as a model one. The highest individual record to date is 174 eggs in Pen C. One bird in each pen has laid 160 eggs or over, and 12 birds have laid over 150 eggs.

Below is the first portion of the paper on "The Rearing of Chicks on the Intensive System," contributed by Drs. Plimmer and Rosedale to the papers read at the World's Poultry Congress :—

THE REARING OF CHICKENS ON THE INTENSIVE SYSTEM.

By R. H. A. Plimmer and J. L. Rosedale
(Beit Memorial Research Fellow),
Chemical Department, St. Thomas's Hospital
Medical School, London.

The first problem in the study of the nutrition of chickens was to rear them in confinement, under laboratory or the closely similar intensive conditions, in which no food other than that supplied was available. Each constituent of the food could then be tested individually.

At the time that our experiments were started the rearing of chickens under laboratory conditions had not been very successful and was seldom attempted. Osborne and Mendel (1916-1918) had many losses and recorded the frequent occurrence of leg weakness. Drummond (1916) quite failed to rear chickens, and believed that there were other factors than an adequate diet. Hart, Halpin and Steenbock (1920) always observed ruffled feathers and leg weakness, Palmer and Kempster (1919) after several failures raised 50 out of 60. Buckner, Nollau and Kastle (1915) kept birds on special grain mixtures, and, with the addition of green food, had very fair results.

As will be seen from our experimental data (below) we have been very successful in rearing chicks in confinement, and our work, to test the value of different proteins in nutrition, had to be modified before this problem could be properly attempted. The chick has been proved by us to be a very useful animal for the study of problems in nutrition.

THE NATURE OF FOOD.

The natural food of man and animals contains eight substances, every one of which is essential for life and health. They are :—

Water. Protein.
Mineral salts. Vitamin A.
Carbohydrate. Vitamin B.
Fat. Vitamin C.

Water is usually obtainable in sufficient quantity and is taken according to the desire of the animal.

The other seven substances are present in the various foods in different proportions. Except the vitamins, the amounts of the several constituents are known from chemical analysis. In the absence of any knowledge of the chemistry of vitamins their presence or absence can only be determined by feeding experiments, and the result simply gives an idea of whether much or little of each vitamin is present. The absolute quantity in any food is not known. The vitamin value of many foods has still to be investigated. (See "Vitamins and the Choice of Food," by V. G. and R. H. A. Plimmer, Longmans Co.)

Mineral salts are an important constituent of the food. Chemical analysis has revealed large differences in the kind of mineral matter in various foods ; some may not contain lime, or there may be an excess of common salt, or there may be a shortage of phosphates, etc. (See "Analyses and Energy Values of Foods," by R. H. A. Plimmer, H.M. Stationery Office.) It stands to reason that a diet to be adequate must include suitable and sufficient mineral salts.

On an ordinary mixed diet the quantity of mineral salts present is usually sufficient for the adult animal. More lime and phosphates are necessary for the growth of bone. This quantity can be roughly calculated from the amount of bone in the body. About one-fifth of the body is bone ; one-fifth of the weight increase will be wanted in the food as calcium phosphates. For the production of egg shell (=6.7 g.) about 3 g. of calcium or lime-salts is wanted for each egg. Any excess of lime or other mineral salt not wanted by the living animal is excreted. An excess of lime or other mineral salt cannot possibly be a substitute for any of the vitamins as is claimed by certain workers.

Carbohydrates, except cellulose, which has no food value, can be regarded as equivalent in nutrition. They are all resolved into a simple kind of sugar in digestion, and only the simple sugar is assimilated.

Fats, except for the A vitamin which they contain, are practically alike. Proteins show numerous differences amongst themselves. (See Plimmer Nature, 1921, 107, 664, "J. Soc. Chem. Ind." 40, 227.) Without entering into details, animal and vegetable proteins may be broadly distinguished. Animal proteins are good, vegetable poor. The proteins of green leaves may be an exception. Very little is known about them at present.

Under ordinary conditions on a good mixed diet the three vitamins are supplied in the food :—A vitamin by green leaves and animal fats, B vitamin by eggs and by cereals if not highly-milled, C vitamin by fresh fruits and vegetables. Vitamins cannot be made by the animal out of other food substances. Whatever their actual function may be in the body, the health and normal growth of the animal is dependent upon their presence. The absence of the vitamins from the food leads in man to the so-called food deficiency diseases. Scurvy follows on a diet deficient in C vitamin, beri-beri on a diet poor in B vitamin ; rickets and a lowered resistance to tubercle and other infections are associated with a lack of the A vitamin. The vitamin requirements of animals differ somewhat from those of a man. The guinea pig is peculiarly sensitive to a shortage of C vitamin. In some species of animals it has not been found possible to produce scurvy. Our experiments with birds show that they are able to do without C vitamin in the food. In the case of scurvy in guinea pigs, Chick and Hume have found that it develops if a definite minimum quantity is not supplied daily. The necessity for a daily amount of the other vitamins has not been so clearly established, but it is indicated by the work of Cooper (1913-14) and of Chick and Hume (1917). These experiments again show this daily need of a definite quantity, but the daily quantity is proportional to the food intake.

(To be Continued.)

Some Fruit Growing Notes to Help Poultry Keepers.

By F. W. WHEELER, F.R.H.S.

IS THE WEATHER TO BLAME?

A very common topic of talk in the Spring-time is varying references to the weather and its effects on the possibilities of a good or bad fruit crop, not only amongst growers of fruits, or those with some trees in their gardens (whether few or many), but also the general public like to tack on to the usual comments some such remark as "What sort of fruit year will this be?" and newspaper references to it are numerous.

The weather is a subject many fall back upon when they want to fill a gap in the conversation; or, perhaps, to start one with a stranger, and some funny things are sometimes unconsciously or thoughtlessly said at such times.

Now as regards "What sort of fruit year will it be?" few seem to realise how many things throughout the whole twelve months will influence the conditions that give or withhold the good crops. It is not merely the Spring frost (the one most commonly commented on) that decides this question, for each season of the year brings conditions that may be very beneficial, or the reverse, and as comfort, when things look black, it is helpful to recall to mind an old proverb (I believe of Dutch or Spanish origin), which says: "When God shuts a door he opens a window."

I want in these notes for Poultry-Keepers to draw attention to some of these conditions, etc., for in so far as we grasp the importance of them, just so far can we do much that will help matters, and eventually bring about good results from what might otherwise be a disastrous season. Of course, we cannot adjust everything.

Let me give one illustration on a small scale, with frosts and plants. Although I have even heard of similar treatment having been applied in a large plantation of cordon apple trees. If when you have some plants in the spring, or Arum lilies in a cold greenhouse, or, again for instance, Chrysanthemums in autumn which unexpectedly get caught by a snap frost, then in these cases the harm that would result can often be avoided by washing off the frost with cold water before the sun comes out, and does the damage. The watering-can, with a rose, will do the trick nicely, or in some cases the hose-pipe can be brought into play.

Those who grow peaches trained on walls out of doors know the importance of being able and ready to quickly cover over the trees with light canvas or some such material, on frosty spring nights. Again, Chrysanthemum growers in the Autumn will in a similar way protect their plants while waiting to get them housed into their winter quarters.

I am perhaps wandering a little from the point, namely, that there are several things which will decide what sort of a fruit crop we shall get each year besides the commonly discussed spring frost, which this year in particular we seem to have been so exceptionally free from while fruit trees, etc., were in bloom.

Just to mention a few things which another week I will treat with more fully and in detail.

Firstly, droughts which come when fruit buds are developing, and should be storing up a vitality, may then be so weakened that the process is not completed and disappointing results are afterwards in evidence.

A heavy set of bloom will not always give us a bumper crop. Drought or caterpillars or aphis will often play sad havoc amongst what looked at a certain period like giving a promising yield. At such times judicious spraying would help to right matters, or, in the case of dryness, a good soaking of water will come to the rescue of newly-planted trees.

Cold summers or sunless autumns may have a great influence on the ripening of the fruit and wood (the latter a thing of equal importance for later results). I noticed last autumn my Pitmaston Duchess pears could not ripen quickly enough, and many started to rot at the stem before ready for picking.

Cultural treatment to help in the formation of fruit buds and feeding in the right way and at the right time all have their influence on development, and ultimately help to settle good or bad crops.

Wrong or neglected pruning will make a lot of difference, for bad work here cannot be made good by the best of weathers. Cutting away too much wood in the summer or not reducing lateral growths to let in the sun to ripen wood is another item that tells when we talk about " what sort of fruit year will this be? " Is it always the weather or sometimes the weeds we have allowed to run wild and to smother up the fruit bushes, that ought to have the blame?

These and other considerations, some very baffling, are wanting careful consideration, and if studied a little more we should often put a little less blame on the weather and spring frosts, and realise that some of the causes of a bad fruit crop are due to ourselves.

When in a pessimistic mood we look at the weather and note the harm we think it is doing to our crops; but when in an optimistic mood we only notice the grains that the same weather is giving us.

The poultry-keeper will grasp my meaning, because he knows that it is not merely bad spring weather that spoils his hatching season, but he has also to look to the care and attention that he has bestowed on his whole breeding stock for the previous twelve months, or more!

Correspondence.

CHICKEN REARING AND THEIR AILMENTS.

To the Editor of "Eggs."

Dear Sir,—I have only a short time been a reader of your esteemed paper, strongly recommended to me by Mr. Woods, now a poultry-manager in France. I am greatly interested in the articles concerning chicken-rearing, and their ailments. So many things need earnest discussion in our poultry papers, and more especially this year, as the winter season has been cold and rainy.

I was in the North of France at the Model Poultry Farm of Madame Vautier, and conditions were bad, until up to the 15th April—as I had to give the place to Mr. Woods through injuring my leg badly in full chicken season. I am sorry I have not yet received photographs of the farm, as the readers could give themselves a better idea of those hen and chicken palaces, to be completed next year for the housing of 5,000 laying pullets and 10,000 chickens.

As my foot gives me plenty of time to think about the growing chicken, and practical work becomes impossible for the moment, I shall ask permission to write down my opinion about chicken rearing, W.D., pneumonia, etc.

First of all, we have to take nature as a model, and we know that a hen, even in winter time, does not lose many chickens by other causes than accident, if proper food, clean water, and a grass run are provided

I have always used the artificial way, and it cannot be otherwise, where many thousands of chicks are wanted every year! Exception is made for valuable exhibition and high-grade pedigree stock. I daresay that I raised a respectable number of chickens—it must be over fifty thousand—with brooders of every kind, and specially own make. After mother hen we come to the small and medium brooders, and it is proved again that with some attention and proper feeding—even in winter and in the open—we can rear easily 100 or 150 chickens together without big losses, not over 5 or 10 per cent., some weaklings and some accidental losses.

I agree to pay one shilling for every dead chicken over the average, but I must know where those chicks come from. I want to see and know their parents. The breeding stock must be in a healthy condition, hens bright looking, two or three years old, and layers of first-grade eggs. Those hens are mated to vigorous unrelated cockerels.

In those circumstances the chickens, if hatched in a good incubator, must be beautiful and strong, and I tell you that W.D., Coccidiosis, Pneumonia, Leg-Weakness, etc., will not trouble me very much.

In-breeding can be one of the causes of chicken weakness, loss of stamina by using pullets' eggs for breeding; even two years old pullets, overstrained with high records in their first pullet year, should not be used in the breeding pen if the size of their eggs become inferior.

The nightmare of inherited infection or weakness often becomes many times an excuse for failing in chicken rearing, but I think the origin of heavy chicken losses is not there. The very reason of those losses is the mass or colony breeding, which has not yet been brought up to a standard of perfection. It is not always the poultry man, with many times a life experience, who must be considered as the only one responsible for chicken losses, if constrained to work with certain brooders, or so-called up-to-date material, chiefly bluff and little experience of real practice. In many brooders 800 or 1,000 chickens are to be brought up together, or put under the same hover, where conditions become quite different from the natural way, and the very best feeding to a day and night service cannot avoid W.D. and Pneumonia in finding their way, especially if climate and season are against us.

The head reason of W.D. is overfeeding in the first days, crowding or chill in brooders or under hovers, and the critical period extends over the first ten or twelve days.

Pneumonia and leg-weakness develop later on by emanation of carbonic gas. The gas is produced by strong winds blowing in the pipe of the stove or bad drawing of the fire, suffocating the chicks and nearly the man who cares for them near the floor, and riddles the store.

There is nothing perfect in this world, and a poultry manager has to alter nearly all existing models of brooders by putting wire frames or wet earth under the chicks' curtains round the hovers to prevent intoxication or chill.

Very cold nights are many times disastrous in those brooders, where fires or lamps lose their regular heating and chill spreads its deadly effects on the chicks. One bad night is enough to kill 50 per cent. of the chicks.

Many people who are not introduced in poultry matters think it is quite easy to obtain the maximum of results in the first year, as where the experienced man has to change his methods, depending on climate, fittings and surroundings and a certain credit and freedom of action is to be given to him, as to make his hand to new conditions.

I do not yet speak about the general management of brooders, because there is too much to say about it, but this time I introduced the readers to a new "Point de vue" of chicken rearing. The way to success is open. We must not be pessimists, neither judge the task of artificial rearing as really solved.

I hope that readers will excuse me writing so very simply, being a stranger to this beautiful country.

ADOLPH DE VEETTER.

La Terte Milom, France.

POULTRY MARKET AT BANBURY.

To the Editor of "Eggs."

Dear Mr. Newman,—A large enclosed market is in process of construction at Banbury, and the promoters have approached me as to whether it is worth their while making provision for the marketing of poultry farmers' produce—Eggs, Petit Poussin, and Table Chicken in general. I promised my support, and also said that I would find out what other support I could get within a radius of 25 miles or so, with the object of getting an idea of the amount of produce that could be reckoned upon. Will those interested please communicate with me so that we can make the best of the opportunity presenting itself.

Banbury, being the important and unique railway centre that it is, should command buyers from all the important towns for 60 or 70 miles around—especially if we can promise an amount of produce sufficient to warrant buyers coming.

Yours faithfully,
W. R. MORRIS HAMMOND.

DUCK HATCHING.

To the Editor of "Eggs."

Dear Mr. Newman,—In the issue of "Eggs," April 30th, Mr. Oscar Gray has written a very interesting article on Duck Hatching. I agree in toto with most of his observations on the artificial hatching of duck eggs, but I think he had generalised too much as regards the correct position that the thermometer should be above the eggs, and also as regards ventilation, anyhow so far as Hearson incubators are concerned.

In our case, after using various makes of machines for duck egg hatching, we eventually fixed on Hearson's, as giving the best results when being run in the hands of unskilled operators, under farm conditions. We now have six of these of the 120 egg size, which we found best for our purpose, as they just held 100 duck eggs each with comparative comfort.

The machines are run in a large harness room. Providing directions are fairly carefully carried out, and the temperature kept an even 104 degrees—105 degrees throughout the hatch. Water trays kept filled the whole time and eggs sprinkled once or twice per diem according to the dryness of the atmosphere and outside temperature (the thermometer in these machines when filled with ducks' eggs, is about a quarter of an inch above the eggs), and eggs are aired. Then I say emphatically that, given fresh eggs, well fertilised, these machines give as good results with ducks' eggs as with hens' eggs. This season we have already had two machines hatch out over 92 per cent. of the total number of eggs in the machine. Last year we hatched out over 1,100 ducklings with an average of hatch of 78 per cent. of eggs put down, and this included a bad hatch due to the drawer of one of the machines being left open all night in the month of March, but even so 43 ducklings hatched out.

One old machine, now seven years old, has on two occasions given us 100 per cent. hatches in March, 1922, and March, 1923. Three incubators were filled, and after eggs were tested on the seventh day all clears were removed, and two incubators filled up to their maximum capacity with fertile eggs from the third machine. We do this in the earlier months when fertility is not so good. Under the circumstances see the good hatches we have had. I think it can be said that the ventilation on the 120 size Hearson is in every way adequate for duck egg hatching.

A damp sponge could not be placed on the eggs in a Hearson machine, as there is not sufficient clearances between the eggs and the top of the egg drawer orifice, so that damping the eggs by sprinkling must be resorted to, which works quite well.

There is one disadvantage of hatching a large number of ducklings during the months of May and June, and that is the difficulty in disposing of the drakelets at anything like a profitable price to the producer. After June the price of table ducks drops rapidly and often disastrously. Last year I saw good Aylesbury ducks, rough plucked, well packed, and in good condition, sold at Smithfield Market at 1s. 6d. each on a Friday. The wholesaler who bought them told me sold them for 5s. each on the following Monday.

My advice to those who have no special market at hand, is to get rid of all late May hatched and June drakelets of the Khaki and Runner breeds at six weeks old, and get what you can for them sold alive in crates. There are several Smithfield and Leadenhall salesmen who will take these live ducklings. My advice is based on experience that cost nearly £70, by running on a lot of K.-C. ducklings to killing stage, and then not even getting the cost of feeding back on them.

However individual circumstances must decide the policy to be taken with regard to disposal of the late-hatched drakelets. In our case we had over 600 drakelets to get rid of, coming into killing condition before first moult in batches of about 200.

It would be interesting and instructive if Mr. Oscar Gray could suggest a profitable method of disposing of the surplus drakelets, for he has had considerably more experience in handling large quantities of ducks than most of us, and must have come up against this difficulty.

Just before the war there was a large duck farm at Hendon. This eventually ceased to exist, and I was informed that the chief reason was due to the fact that late-hatched ducks for table purposes could not be profitably produced.

C. S. ROSCOE.
Turners Wood, Chalfont St. Giles, Bucks.

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

GUENON'S ESCUTCHEON THEORY FOR COWS APPLIED TO FOWLS.

To the Editor of "Eggs."

A good many years ago a Frenchman, named Guenon, astonished the world by putting forward the theory that the amount of milk that a cow was able to give, under good treatment, could be judged before she came into milk by the growth and position of the hair between the udder and the tail.

His theory was found to be sound, and the French Government gave him a pension for his discovery.

The same theory works, in the opinion of the writer, when applied to fowls. Instead of the hair of the cow one has the fluff of the fowl, which starts under the tail and goes down to the end of the breast bone.

This fluff, it will be noticed, varies considerably in different birds; in some it is broad, in others it is narrow.

Now, as a general rule, it can be said that the broader and the longer it is the better the bird, so long as it is not abnormal or misshapen, for it should be more of an oblong than an oval, not much longer than it is broad. The fluffier the better, also looking sideways it should only be slightly curved.

Length denotes the period the bird is likely to go on laying for, the breadth the time each clutch takes to be laid, also the broadness is a sign of broodiness, although some of the broadest birds are never broody.

This method is most useful when selecting pullets or stock cockerels.

BERNARD REDDAWAY.

Pyrford Place Farm,
Pyrford, near Woking, Surrey.

REARING TURKEYS ON DRY MASH.

To the Editor of "Eggs."

Dear Sir,—In answer to Capt. Stedman and referring to my letter on feeding young turkeys on dry mash.

Water was given right from the start. Probably excellent results would be obtained from using skim milk instead of water, but the turkeys we reared were very healthy on water for the liquid portion of the ration.

One thing I omitted in my letter. We put a few chickens with the turkeys to begin with, as we thought the latter would draw the attention of the young turkeys to the food and water.

We soon removed them, as the turkeys speedily began to look after themselves.

Yours faithfully,
ARTHUR BARKER.

Sycamore Farm,
Kenton, Stowmarket, Suffolk.
21st May, 1924.

HATCHING—REARING.

To the Editor of "Eggs."

It appears to be assumed that "hatchability" and "rearability" are due to the same causes. My experience leads me to question whether this is so.

This season, in common with many others, I did not have specially good results from hatching, but the eggs from a Brown Leghorn here that I had given me by a friend proved very fertile; the chicks came out strong and apparently healthy, yet the mortality amongst these was far heavier than amongst chicks from eggs where the hatchability was ever so much lower.

It seems to me that different factors operate with regard to hatchability and rearability.

I am only a learner in the junior class, and I am so thankful that you cater in your journal for beginners as well as for the graduates in this most interesting yet trying profession.

Yours, etc.,
YOLK-EL.

IS GRIT NECESSARY?

To the Editor of "Eggs."

Dear Sir,—In connection with the discussion on the above-mentioned subject, the following facts appear to me to be germane, and may be of interest. I do not wish it to be thought that I draw any inference from these facts. Others who are more wise or more rash than myself may do so if they choose.

I rear annually some 700 White Wyandottes. For three years the food from the shell to maturity has been entirely vegetable in its origin. This year I have added white bone meal. (This is a dusty white powder, such as might be the product, were old tooth-brush handles ground up). It has been fed in wet mash in the proportions of from one-twentieth to one-tenth, according to age.

Until this year the growing stock have always consumed large quantities of flint grit. The consumption of this commodity by birds between the ages of twelve weeks and the laying stage has been enormous. Furthermore, when pullets were moved into permanent quarters where fine clinker had been used to dress muddy places, they very soon consumed every scrap of this.

The quarters occupied by each successive year's young stock are identical. The food, with the exception of this year's addition of bone meal, has never varied at any given age. This season, however, I find that none of my stock will look at flint grit of any size whatever. Neither will they touch Leckhampton grit, nor clinker, nor yet cockle shell. My normal consumption by this time would have been some three to four cwts. of various grits, and an unknown quantity of clinker. Actually, I doubt if thirty pounds has been actually eaten.

The assertion (made by Mr. Heinze in a recent issue when discussing the above question) that fowls are provided with crops *because they have often to pick up a day's food in a few minutes*, is rather a novel one. Does the same apply to the duck? And would Mr. Heinze give us a sketch of Gallus Bankiva in its native haunts, and explain how it is that though not carnivorous, it yet has to procure its day's food in so short a time as "a few moments."

"CORNSTALK."

IS GRIT NECESSARY?

To the Editor of "Eggs."

Dear Mr. Newman,—In view of the manifest interest aroused by your article on this question, I should like to draw attention to an investigation to determine the function of grit in the gizzard conducted by *B. F. Kaupp*, at the North Carolina Agricultural Experiment Station, and reported in the Journal of Agricultural Research, February 9th, 1924.

Barred Plymouth Rock hens were used in this 12 months' test, and were kept without any possible access to grit. At different periods hens were killed, and the gizzards examined for the grit which still remained. The following extracts give some of the conclusions drawn by the investigator:—

> "It is apparent that a bird may go 365 days without grit being fed to it, and still have enough remaining in its gizzard to grind its food. The grit that remained in the gizzard for 365 days appeared just as sharp as that found at the beginning of the experiment. In fact the writer does not believe that the grinding in the gizzard is a sharp cutting process. Rather it appears that the food soaks more or less in the crop, depending on the length of time it remains there. It then passes from the crop through the second portion of the esophagus to the proventriculus, where it lies in acid secretion. From the proventriculus it passes into the gizzard, and there the muscles of the wall contract, forcing the soaked grain among the particles of grit, and by a squeezing rotary motion reduces it to fineness. The action is like that of a ball mill. Birds hold their weight and remain perfectly healthy on either sharp or dull grit.
>
> There is a tendency for fowls to eat more grit than is essential for grinding their food. While there is a tendency to pass off the excess grit and to keep a residual amount, the amount retained varies greatly in different individuals. At the end of 365 days the gizzard of one hen contained as much grit as was found in a hen killed for examination on the thirty-sixth day of the experiment. The healthy condition of the birds which were kept until the end of the experiment indicates that a fowl may go longer than a year without replenishing its grit."

Like your Hampshire correspondent I have noticed the voiding of large quantities of grit when the supply of oyster shell has run out.

Yours faithfully,
L. J. GRAY.

ANIMAL BREEDING RESEARCH DEPARTMENT, THE UNIVERSITY, EDINBURGH.

To the Editor of "Eggs."

Dear Mr. Newman,—Among your members there will be many who have kept accurate records of this season's hatchings. I am anxious to get the following data: Breed; number of eggs set; number of infertiles; number of dead-in-shell; number of chicks hatched; number of chicks that died after hatching; sex of these; sex-ratio of chickens reared. A request of some magnitude, I confess.

The reason for it is this. One of the problems of the utility breeder is that of the sex-ratio and its control. The sex-determining mechanism, now clearly recognised, is such as would be expected to yield, in the absence of disturbing agencies, an equality of the sexes in each generation. This generally is not realised. The secondary sex-ratio, which obtains at the time of hatching, is based upon the primary sex-ratio which obtains at the time of fertilisation. If the hen elaborates the two kinds of eggs—those which when fertilised are destined to yield males, and the others which are destined to yield females—in equal numbers, and if fertilisation of one sort is as easily secured as that of the other, then any difference between primary and secondary sex-ratios is to be interpreted as the reflection of:—(1) A differential production of these two sorts of eggs by the hen. (2) A selective fertilisation. (3) A selective elimination of one sex during incubation.

Here, I submit, is a profitable problem for the S.P.B.A. If the sex-ratio of the chicks that hatch is known, and if the sex of all dead-in-shell is known also, it may be possible to recognise that fœtal mortality affects one sex more than the other. I suspect that a "cockerel" year is simply an indication of a selective "pre-hatching" mortality of female chicks.

Again, does the secondary sex-ratio swing with the serial number of the egg? If every egg of a hen is incubated, it will be found that the sex-ratio swings considerably—from the early eggs a preponderance of males, from the latter a preponderance of females are produced. Is this general?

Do environmental agencies affect the sex-ratio? There is critical evidence that in certain cases (though not in the fowl) they do. Feeding and temperature and such like agencies are under the control of the breeder, and it may be possible ultimately to define the conditions that swing the sex-ratio in one direction or another

If your members think anything of these suggestions, a review of this year's results may encourage us to tackle the problem seriously next season.

Yours sincerely,
F. A. E. CREW, Director.

NORTHERN UTILITY POULTRY SOCIETY LAYING COMPETITION, 1923-24.

SEVENTH REPORT, APRIL 17th to MAY 14th, 1924.

The weather during this twenty-eight days has, on the whole, been much milder. Seven days have been free from rainfall; actually little has fallen, although so many days—21 have to be recorded as wet.

The health of the birds, also, has been normal this month, illness being confined to ovarian troubles.

Quite a lot of birds have been broody, which was only to be expected, the percentage of broodies during the first six months of the test being a very low one. Most of the leading pens continue to do well. It is noticeable also that a better lot of eggs come from the small breeders and the championship sections than from the other sections.

DUCK SECTION.

These competitors have done well again this month, Pen 188, Khaki-Campbells, again being top scorers, with 138 out of a possible 140, 137 of which count, so that Miss Bagnall has added

268 eggs in two months to her score. Major Dugdale maintaining his position as the head of the Section with 128. Two birds have died, Nos .17 and 51, the latter after a sequence of 25 eggs in as many days.

All are in good health, although lameness has returned to No. 41, Fawn and White Runner.

SUMMARY OF LEADING PENS.

The figures are eggs for seventh month and total eggs to date respectively:—

Section No.1. W. Leghorns.—No. 1, Jethro Birtwistle, 118, 568; No. 2. Wade and Law, 97, 561; No. 3, A. J. Berry, 109, 537.

Section 2. W. Wyandottes.—No. 1, Mrs. M. J. Crookes, 114, 614; No. 2, E. J. Stone, 106, 602; No. 3, Bolton and Gardner, 49, 587.

Section 3. Any Other Variety (Non-Sitting).—No. 1, G. B. Metcalfe (B.L.), 93, 534; No. 2, Robert A. Fawsett (B.L.), 67, 463; No. 3, P. K. Berry (B.L.), 101, 461.

Section 4. Any Other Variety (Sitting).—No. 1, Margerison's (Rishton B.O.), 81, 561; No. 2, P. K. Berry (R.I.R.), 103, 547; No. 3, J. Ashworth (R.I.R.), 83, 514.

Section 5. Small Breeders.—No. 1, Mrs. A. Stow (W.L.), 111, 588; No. 2, T. Lindley (W.L.), 99, 565; No. 3, G. Ware (W.L.), 114, 552.

Section 6. Championship (10 Birds).—1, G. B. Metcalfe (R.I.), 199, 1,155; No. 2, G. H. Rayner (W.W.), 161, 1,071; No. 3, J. A. Rigby (R.I.R.), 209, 1,067.

Section 7. Ducks.—No. 1, Major J. C. Dugdale (K.-C.), 128, 715; No. 2, Oscar C. Brown (K.-C.), 116, 593; No. 3, Miss Bagnall (K.-C.), 137, 571.

THE LANCASHIRE UTILITY POULTRY SOCIETY INTERNATIONAL LAYING TEST, 1923-24.

REPORT OF EIGHTH MONTH, APRIL 29th to MAY 26th, 1924.

The output of eggs has fallen slightly during the latter part of the month, mostly through broodiness on the part of the heavy breeds, White Wyandottes being the chief offenders.

The light breeds continue to do well, and are making headway. Some good pen and individual records have been made.

Four birds have died during the month; the rest of the flock are in good health.

SUMMARY OF THE LEADING PENS.

Heavy Breeds. Section 2. Large Breeders (10 Pullets).—No. 1, Rodwell, R., Nelson, 1,584 eggs; No. 2, Crabtree, W., Twiston, 1,495 eggs; No. 3, Rogers, W., Market Drayton, 1,382 eggs.

Light Breeds. Section 1. Large Breeders (10 Pullets).—No. 1, Snowden, F., Cowling, 1,439 eggs; No. 2, Metcalfe, G. B., Lechdale, 1.402 eggs; No. 3, Aspden, R. H., Balladen, 1,409 eggs.

Heavy Breeds. Section 4. Small Breeders (Five Pullets).—No. 1, Helm, J. E., Rosendale, 709 eggs; No. 2, Purdle, J. and W., Lanark, 793 eggs; No. 3, Greenall, S. and J., Carlton Scroop, 684 eggs.

Light Breeds. Section 3. Small Breeders (Five Pullets).—No. 1, Budd, C. F., Abergavenny, 810 eggs; No. 2, Paul, Miss A., Coupar Angus, 769 eggs; No. 3. Purdie, J. and W., Lanark, 735 eggs.

Heavy Breeds. Section 6. Open (Single Bird).—No. 1, Cook, R. N., Tarleton, 163 eggs; No. 2, Rainford, J., Penwortham, 158 eggs; No. 3, Crawford, J., Hurlford, 164 eggs.

Light Breeds. Section 5. Open (Single Bird).—No. 1, Wallis, A. V., Oxon, 160 eggs; No. 2, McCoomb, J. S., Bracknell, 156 eggs; No. 3, Gonne, Capt.,, Ringwood, 142 eggs.

Heavy Breeds. Section 8. Novice Breeders (Four Pullets). No. 1, Mills R., Penwortham, 562 eggs; No. 2, Marsden, G. E., Lostock Hall, 564 eggs; No. 3, Ronson, W., Preesall, 548 eggs.

Light Breeds. Section 7. Novice Breeders (Four Pullets).—No. 1, Sharpe, T., Dunfries-shire, 610 eggs; No. 2, M'Coomb, J. S., Bracknell, 581 eggs; No. 3, Winward W., Bamber Bridge, 565 eggs.

BREED AVERAGES.

Breed.	No. of Birds.	Eggs laid to date	Aver. Eggs to date.
W. Leghorns	516	63574	123.15
W. Wyandottes	329	41081	125.20
R.I. Reds	125	14760	118.3
Black Leghorns	56	6496	115.86
Anconas	24	2497	105.10
Iight Sussex	19	1857	97.60
Australorps	10	728	72.80
Exchequer Leghorns	6	597	99.43
Brown Leghorns	9	926	102.90
Barnevelders	10	915	91.50
Buff Rocks	12	1684	96.30
Blue Mendel	4	388	97.0
Black Mendel	4	423	105.75

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times.

We would therefore request that Copy should be posted not later than Thursday.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to **Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.**

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (**NOT from** Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

B. D. S. (Gosforth). The bran is a wretched sample. The middlings too are poor. They have been badly stored, are damp, and a little musty. It is quite possible that this was the cause of the death of your hens. You might sue the firm for compensation, but you would have to have definite evidence that this was the cause of death, and unless you send one of the birds to an expert who could testify to this, your chances of getting compensation would be very remote.

K. L. (Derby). The sample of ground oats is just moderate—very rough, and the oats used appear to be of a poor quality; the middlings are almost equal to seconds flour, and very good indeed. The bran is quite a good sample—far better than we usually get. With regard to bumble foot. This is usually caused by the birds jumping from too high a perch on to a hard floor, and bruising the ball of the foot. The best treatment is to make an incision at the bottom of the swelling which will allow the greyish semi-fluid contents to escape. Pack the cavity with cotton wool wet with perchloride of iron. This will stop the bleeding. You will then have to bandage the foot. It will be necessary to dress the wound for a few days using some disinfectant, such as Izal in place of the perchloride of iron. Treatment is often very slow, and, of course, the bird must not be allowed to perch until the foot is quite sound.

A. B. C. (Isle of Man). The sample of barley meal at 12s. a cwt. is good average quality. The maize germ meal, although a good sample, is very dear at 15s. 6d. The fine sharps are good value for money as prices go. The alfalfa meal is just a moderate sample, and the price is much too high. The meat meal, 20s., is good average quality. No. 2 broad bran is the better value for money. The maize meal is a good sample, but the ground oats are not "Sussex" ground, and appear to contain a good deal of barley. I think they are rather high prices. The oats are just fair, the wheat good, and the kibbled maize of average quality. You must watch your birds carefully, and on the first signs of smaller eggs, or a decrease, reduce the bulk of the mash. The quantity of alfalfa meal you are using is sufficient, but you want better quality. You do not tell me what the weight of the chicks is at ten weeks, so I cannot tell you whether it is good or not. I should continue to use your present formula for the cockerels until you want to put them into the fattening crate. You should do this when they weigh about 2¼lbs. to 2½lbs. each. No, the sulphate of copper will not do the birds any harm, but if the colds are cured there is no object in continuing.

J. L. W. (Pickering). We cannot answer such a question as your first one in these columns. Bone meal will answer the purpose if you cannot obtain bone ash. The parts are by weight. It is advisable, should birds be closely confined, to give it to the breeding stock, and to growing stock up to the time they are six months old. You will appreciate that it only applies to some forms of leg weakness, which may be caused by a deficiency of lime phosphates in the food, but there are many forms of leg weakness and many causes.

H. R. B. (Gloucester). You are quite right. The fact that you have run the White Wyandotte cockerel amongst your Australorps would not have any influence on the progeny of the hens to which that cock was mated in future. I explained all this in an article I wrote in "Eggs" some months ago. It is an old idea which dies very hard. On an average I am asked this question once each week.

F. W. M. (Lymington). Environment is not likely to have any effect on the colour of the plumage. The fact that you had a mongrel black hen running in a pen of Black Bresse and several of the pullets have little specks of black in them has certainly nothing to do with the environmental conditions. (2) With regard to the quantity of grain it is advisable to give. This cannot be stated definitely. I always prefer to give the grain merely as a scratch feed, as I have said before, and induce the birds to consume as much of the mash as possible. It is good to hear that you have had such exceptionally good results. This has not been an exceptionally good rearing season. As far as reports received go the contrary is the case.

T. H. D. (Formby). The sample of alfalfa meal is just fair, and the price about right. The oyster shell is good value for the money. The same remark applies to the kibbled maize. The ground oats are not "Sussex" ground, but at 15s. cwt. are fair value. The broad bran is a good sample and good value. The middlings are a good sample and good value for the money. The fish meal appears to contain rather a high percentage of oil. The maize meal is only moderate in quality, and rather high in price. The oats are fair and the price about right. The wheat is good and the price right.

"MAP" (Orpington). I have had no experience of preserving eggs with equal parts vaseline and boracic acid. Sorry I cannot give you any information on this subject.

H. S. H. (Bolton). The hen which is moulting now will not continue to moult until Christmas. She will regain her feathers in a few weeks and probably start laying about October. I would not advise you to kill her. You must determine yourself whether it is advisable to keep her or not. There is always life in a fertilised egg. It may be dormant, but directly it is incubated at a suitable temperature it becomes active.

POST-MORTEMS.

E. W. They were subjects of coccidiosis, and although so young had the secondary form in the liver.

A. J., Chester. Congestion of the lungs was the condition found in this gosling. There were none of the tubercles present which are diagnostic of the infectious kind. Probably chilled.

P. McD. These were cases of coccidiosis. In the present season, as pointed out in my recent article in "Eggs," the disease takes such an acute form in the bowel that it amounts to haemorrhage, and it is advisable to concentrate on catechu, giving as much as one teaspoonful of the powder in each three gallons for young chicks, or in two gallons at six weeks and upwards.

J. C. R. The cock had cardiac hypertrophy, and heart was much dilated. This is a frequent cause of heart failure in male birds of mature age, and the collapse is precipitated by the excitement of shows and of travel. Passive congestion of the lungs was secondary on failure of the "pump."

A. W. O. None of the chicks exhibited B.W.D., but coccidiosis had deprived them of vitality very early; possibly in the embryo.

A. A. L. The White Wyandotte pullet had pneumonia and acute congestion of the kidneys.

"Betsey" Trotwood. No infectious disease was discovered, but there was abundant evidence of failure to assimilate the food. This may be inherited weakness or an unsuitable ration. Your many questions are noted, but it is not possible to answer them in a report on post-mortem examinations. There have been articles by the Editor and others which should be read with care.

P. C. (Lyonshall). We find that the pullet had heart disease, the investing membranes having long been thickened by inflammation resulting from gouty deposits within and without. There was no disease of the liver, beyond some congestion owing to the defective action of the heart. Treatment of her associates should be that adopted for gout, such as a 24 hours' fast, and a daily dose of 15 grains of sulphate of sodium, and two drops of colchicum wine. When tension has thus been reduced, there should be cessation of losses from this cause.

J. R. L. This pullet had diseased kidneys, and they were all blocked with solid urea, after the main drain had been choked with like material. Instead of being the size of stout thread, it was as large as a quill pen. Thrown back upon the circulation, uraemic poisoning follows. Her associates should be fasted and given salines, such as a teaspoonful of salts between six every morning for a week or more. A less stimulating diet should be given.

Mid-Hants. The chicks had the acute form of coccidiosis which had resulted in arrested absorption of the yolk. You are referred to the article which appeared in "Eggs" on May 28th.

H. LEENEY.

DISEASES OF POULTRY.

By Capt. LEENEY, M.R.C.V., M.S.A., A.P.S.

CONTENDING WITH DISEASE.

In a recent contribution on Coccidiosis and the changing and formidable form it has taken during the present season, I expressed a fear that this among other infectious diseases might prove the undoing of the poultry industry, unless science can find for us some method of cleaning our flocks or preventing its inception.

No day passes without the receipt of dead chicks ranging from one to twelve weeks of age suffering from the peracute form in the caeca or blind guts, where, instead of forming a slow accumulation of cheesey material with here and there points of more acute inflammation, we find the gut filled with a purple semi-fluid mixture of decomposed blood and mucus. It is most prevalent in nice growing chicks of eight to twelve weeks old, and the treatment with alternate doses of a weak solution of catechu and hydrochloric acid which gave such good results in the two previous years fails to meet the more virulent condition. Trial is being made of a stronger solution of the astringent catechu without the acid, and of direct antiseptics of the coal tar series, and results will be published in "Eggs" if they prove advantageous. Meantime I would recommend giving a teaspoonful of powdered catechu in every two gallons of drinking water with a view to arrest the bleeding of the mucus membrane lining this portion of the bowel. It should also be worth trying carbolic acid, but this drug is objectionable by reason of its smell and taste, and apt to be rejected on that account. If birds cannot get water they like, they will not drink enough, and then other troubles are invited, such as constipation and indigestion. Individual medication is only possible with the few, but is worth while trying where valuable chicken have been promptly isolated, or the economic aspect of the question is secondary to the desire to save them. The best way of administering carbolic acid is to mix the No. 5 acid with twice its weight of glycerine, and then add to water with brisk agitation. About one-quarter of a drop is enough for chicks under six weeks, and this may be increased to half at ten weeks, and to one or two drops for adults, as a daily dose. It is more willingly taken when mixed with foods already pungent, such as the spices commonly sold for promoting egg production, or a little femugraec may be added.

Coccidiosis is not peculiar to birds; it is widely spread among other animals, and in any attempt to obtain a preventive vaccine or serum we are met with the difficulty which lies at the root of the recent controversial passages between the Editor and some esteemed correspondents. The optimistic section believe we have already isolated, cultivated, and attenuated the specific causal organisms of various infectious or contagious maladies, so that we could and ought immediately to confer immunity upon our flocks. The more cautious point to the doubts existing as to the isolation of the single causal organism, and refer us to the non-filterable viruses which have so long defied the research workers, and entertain a doubt at least justifiable as to the claims which they deem premature or needing further extensive trial before adoption or recommendation from the responsible position of an editorial chair.

Much patient work has been done by my friends Mr. W. W. Scott, F.R.C.V.S., of Bridgwater, and Professor C. G. Saunders, formerly of the Toronto University, and now associated with me in the post-mortem investigations carried on for "Eggs," but they are too deeply versed in the work and its pitfalls to jump to conclusions and advocate indiscriminate vaccination or the introduction perhaps of disease instead of inhibition of it by protective sera or inoculations.

Mr. Scott is the author of two of the latest and best books on clinical bacteriology and vaccine therapy, and a system of treatment, but he, like Professor Saunders, whose work at the Canadian University has gained world-wide recognition, are faced with the fact that more than one organism is suspect, and proof of diseases being brought home to a single one is wanting in the subjects now under consideration. Enthusiasts will point to the great success attending the discovery of typhoid and other germs against which the man may be fortified, but we have not got so far in regard to poultry, and much research is necessary. What is known as a stock vaccine may afford a degree of immunity while waiting for the preparation of an autogenous one—that is to say, one prepared from cultures of the actual bacterium or its strain already producing the infection in the animal. A polyvalent vaccine or one derived from several strains and races and their values are not accurately measurable, and an autogenous one is preferred because made from morbid material taken (with due precautions) from the patients to be immunised. One of the difficulties which at present confront the avian pathologist is the apparent causation of different diseases seemingly traceable to the same organism, or is the organism merely one that resides in the tissues independently of the disease?

In the case of bird pox, usually affecting the head ornaments, and appearing primarily as warts, but bringing disaster if not promptly dealt with, we find under the microscope the same microbe as in the diphtheritic roup subject, or the bird with fungoid masses in the mouth, or the harder ring of true avian diphtheria as it forms in the larynx and causes suffocation. Pathologists are none too sure that it is the same organism which has such very different products in the way of morbid matter. Specific organisms are often indistinguishable morphologically when brought into focus and seen under the best of "mikes," but like the tubercle bacilli of man and beast and bird are only differentiated by their behaviour with particular strains and in cultures.

Let us by all means encourage true research, and sustain ourselves in the hope of future conquests of infectious disease, but the time is not yet. Mistaken enthusiasts and interested dealers in "biologics" at present hold the field, and in America, where much more has been done in the study of poultry ailments, it has been found necessary to restrain by law the many pretenders in the field whose disappointing products lead to disbelief in everything to be conveyed by a "squirt gun."

THE ULSTER POULTRY INDUSTRY.

With a Summary of the Main Provisions of Mr. Archdale's Egg Bill, which is to come into effective operation on the 1st January next.

Since the Government of Northern Ireland came into existence constant attention has been given to the special needs of the farming community and the importance of the fuller development of the poultry industry, on practical and scientific lines, has been more keenly appreciated. Schemes of instruction in poultry-keeping are in operation in each county, and qualified instructors conduct classes at suitable centres. In addition, they visit and advise farmers in regard to the management, housing and feeding of their flocks, and the selection of fowl for breeding purposes. Premiums are also provided by the County Committees of Agriculture for egg distribution stations, with a view to grading up the egg-yielding qualities of poultry kept in the country.

Demonstration Farms.

Arrangements have been completed with certain owners of selected poultry farms to co-operate with the Ministry of Agriculture in demonstrating the commercial possibilities of poultry-keeping when managed on up-to-date lines.

The farms are of three quite distinct types, viz.: (a) A large poultry farm, where at least two thousand birds are kept. (b) A small farm, showing how a restricted area of a few acres can be profitably used; and, finally, (c) a mixed farm, where poultry are kept as an adjunct to the ordinary tillage operations. Parties interested in poultry-keeping can visit these farms by arrangement with the Ministry.

Three Millions Annually.

Few people have even an approximate idea of the value of the egg industry in Northern Ireland. Not only is Ulster self-supporting, but from Northern ports eggs to the value of some three million pounds annually are despatched to Great Britain. Such, however, are the possibilities of the industry that there is no reason why this valuable source of income should not be substantially increased. Many natural advantages exist. The climate and soil are particularly suitable, the Irish egg in point of quality excels any supplied to the British markets by other countries, and the farming system in Northern Island is just that type which permits the maintenance of large numbers of birds. In a country of small holdings, where mixed farming is the rule, poultry fit in as a natural, and, where properly looked after, as a profitable adjunct to the other farming operations.

Laying Competition Results.

The first egg-laying competition (1922-23) conducted by the Ministry was "over-subscribed," many would-be competitors being refused admission on the grounds of lack of accommodation. The results of that competition show that there are in Northern Ireland as good laying strains as in any other country—in fact a world's record in egg production was established by one particular bird. At present the general average yield on the farm is estimated at about 100 or 110 eggs per bird, and, when regard is had to the record of these laying competitions in Ireland, in which from 1913 to 1923, the number of eggs per bird rose from 120 to 189, it should not be impossible to raise the general average to 150. Granted a keener appreciation of the possibilities of the industry, a considerable increase of the poultry kept, as well as in the number of eggs per bird, is a reasonable ambition. This dual advance in numbers and yield could easily mean an addition to the agricultural wealth of Ulster of a million pounds per annum.

Proximity to Consuming Centres.

A real incentive to this end lies in the proximity of the British markets, which are capable of absorbing as many consignments of high-grade produce as Ulster can send. To maintain and develop this outlet, and to popularise home production, improved marketing is necessary. A stage in the industry has now been reached when a general forward movement of this nature can be made with more than a prospect of success. The essentials are better grading and packing and the elimination of the stale or dirty egg. The Marketing of Eggs Bill is a distinct step towards the achievement of this end. The main provisions of the measure are briefly summarised in the succeeding paragraphs.

Licensing of Wholesale Dealers.

Licenses will be issued officially to wholesale dealers in eggs, and the retention of a license will be contingent on compliance with conditions to be laid down with regard to the proper testing, grading and packing of eggs, and their freshness and fitness for consumption. The expression "wholesale dealer" is so defined as to include collectors of eggs who either act as agents for some of the larger merchants, or who dispose of their eggs direct to retailers or commission agents.

Registration of Cold Stores, etc.

Premises where eggs are preserved, cold-stored or pickled, must be registered, and the owner or occupier of such premises will be required to furnish returns as to the delivery, despatch and ownership of eggs. Accurate information will thus be readily obtainable as to the disposal of such eggs, some of which have heretofore been mixed with fresh farm eggs and sold in the country markets.

Branding of Cases and Labelling of Eggs.

Cases containing preserved, etc., eggs are to be specially branded, and if the eggs are exposed for sale by retail, they shall be appropriately and conspicuously labelled. The preserving of eggs is quite a legitimate form of business, but all reasonable precautions must be taken to ensure that these preserved eggs do not masquerade as fresh. By making the warranty provisions of the Sale of Food and Drugs Acts, 1875 and 1899, applicable, a safeguard is incorporated in the Bill to cover cases where an offence has been committed innocently. Final responsibility will rest on the guilty party, and not on the technical offender.

Packing Eggs Under Cover.

It is proposed that Market Authorities should provide sufficient and suitable accommodation for the packing of eggs under cover. The complaint is common that many Irish merchants often pack eggs in the open market, and that exposure to adverse weather conditions seriously affects consignments. In the exercise of the powers sought under this Clause, due regard will, of course, be had to the local demand for such accommodation, and to the requirements of the egg industry in the particular centre. Apart from the responsibility to be placed upon Market Authorities in this respect, it will, of course, be open to the Ministry to include in the Regulations under the Act a condition constraining a licensed wholesale dealer to pack eggs under cover.

Sale of Bad Eggs.

During the past two years Local Authorities in Ulster have been more vigorous in the enforcement of the provisions of Part 3 of the Public Health Act (Amendment Act), 1890, in respect of the sale of bad eggs. Many Urban and Rural Councils have adopted the Act, and have made arrangements for examination of eggs exposed for sale in their area, with very satisfactory results to the egg industry. In all fifteen prosecutions have been undertaken for the sale of bad eggs.

Difficulties have, however, arisen from time to time in taking full advantage of the provisions of this Act, chiefly because of reluctance on the part of neighbouring Sanitary Authorities to act concurrently, and of the circumstance that Part 3 of the Act of 1890 is very wide in scope, affecting, as it does, many commodities besides eggs. The Bill aims at putting the provisions of the above-mentioned Act in force (so far only as eggs are concerned) without the necessity for formal adoption—as is now requisite—by the Local Sanitary Authority.

Inspection Powers.

The Bill provides for right of entry by authorised officers into registered, licensed or suspected premises, and for examination of samples, and generally for the purpose of carrying the Act into effect.

Rules.

The Ministry may make rules for prescribing the conditions to be complied with by persons licensed to carry on business as wholesale dealers in eggs. It is obviously impracticable to embody the detailed regulations in an Act of Parliament. Any such regulations, to be effective, must keep pace with the development of the industry, and will require amendment and revision periodically.

KEIGHLEY AND DISTRICT BRANCH
OF THE S.P.B.A.

PRIZE DRAW.

WINNING NUMBERS.—9552, 454, 814, 1390, 483, 8931, 8105, 6486, 79, 6022, 3229, 8065, 8409, 4016, 3121, 2846, 8946, 9875, 476, 9872, 859, 150, 4273, 1316, 3150, 8972, 622, 9828, 7277, 8, 444, 442, 3411, 8108, 4373, 1323, 3104, 6020, 118, 2356, 3114, 1457, 3477.

ANSWERS TO QUERIES—Continued.

J. D. (Choppington). I should consider such a mating as you mention as being too close and only warranted with exceptional birds on both sides, and exceptional circumstances. As I have previously pointed out the question of mating being too close or not, must be largely determined by the breeder, who is on the spot, and who is acquainted with the individual birds—their history, constitution, and stamina. If there is any weakness, such a close mating as you suggest would only emphasise it. It would not, even with exceptional bids, mean that the progeny would be as good as the parents. Looking at it from my point of view, I should advise you not to make such a mating unless you are fully satisfied with the birds, and you consider no harm could arise.

W. R. W. (Cunnor). The sample of meat and bone meal you send me contains a high percentage of bone. I do not call it at all a good sample. Further, there is a good deal of hair in it. The toppings are of good average quality. I should like to see a little more flour in them. The ground oats are a good sample and good value for the money.

T. R. (————). If you want to breed from White Wyandottes in January, it would be advisable to throw them into a moult in September. The best plan would be to remove them to fresh quarters and change the feeding. The starvation method is not to be recommended. Give less mash until the feathers begin to fall, and feed principally on oats and wheat. When the feathers begin to fall put them on full feed again. Give the ordinary mash, and add 5 per cent. linseed meal, and replace all the wheat and oats with kibbled maize as the sole grain feed. The following is a good breeder's mash: Two parts broad bran, one alfalfa meal, four middlings, two Sussex ground oats, one maize meal, half crushed linseed, half dried yeast, and half meat and bone meal or fish-meal. You could use this wet or dry, but if wet do not scald the bran, but reserve it to dry off the remainder of the ingredients with. This mash should be given only to help the birds through the moult. As a grain feed give two parts maize, one good white oats and one wheat. For a layers' mash: 1lb. bran, 1lb. alfalfa, 4lbs. middlings, 1lb. maize meal, 1lb. Sussex ground oats, ½lb. dried yeast, and ½lb. meat meal. If you have a plentiful supply of green food, the alfalfa meal can be replaced with good broad bran. With this layers' mash the grain feed should be: Three parts kibbled maize and one part wheat.

POST-MORTEMS—Continued.

Mrs. L. C. This chick had congestion of the kidneys and an enlarged heart. The "gasping" was caused by the heart trouble, and not by gapeworms, none of which were present.

T. H. B. W. The chick had pneumomycosis, the infectious form of pneumonia, caused by the invasion of fungi, chiefly the Aspergillus Fumigatus. Treatment is of no avail, but many readers testify to the preventive action of tonics, such as forty grains of citrate of iron and quinine to the gallon of drinking water, changed in a week or two to infusion of gentian, using one ounce of the concentrated preparation kept by chemists to each gallon of water.

F. J. B. The Leghorn chick had many nests of worms in the intestine (cysts of future worms), and in one region the bowel was punctured. Treatment is of little use, as remedies pass over the cysts without affecting them. Tonics of iron and quinine may help to brace the victims until the mucus membrane has become accommodated to the presence of the intruders.

Mrs. R. The chick was affected with jaundice. There are many causes, and some very obscure. As a rule the administration of salines and a simpler diet succeeds if the circulation of bile in the blood has not gone too far. No, the smaller fee does not entitle the member to a reply by post, but correspondents are so informed in the case of infectious diseases. Please see the printed instructions each week in "Eggs." It would be better if all senders of post-mortem subjects could have a reply by return of post. Certainly it would be more satisfactory to me.

W. H. J. Digestive failure was all that could be found in these chicks. No infectious disease.

E. G. The Light Sussex cockerel had a much-dilated heart and a dropsical condition of the sac with a jelly-like exudation. This is a frequent cause of death in cocks of mature age, and especially among the more "temperamental." No doubt the excitement of running away, and blindly, into an obstacle, precipitated an event which must have otherwise occurred before long. It isn't always the case that "he who fights and runs away, will live to fight another day"; but if this bird had known the nature of his cardiac lesions he could not have exercised more discretion or shown "the better part of valour."

THE WORLD'S POULTRY CONGRESS.

CANADIAN AND UNITED STATES DELEGATES WELCOMED BY BRITISH SOCIETIES.

It was a very happy gathering at the Savoy Hotel on Whit-Monday evening, when the Canadian, American and New Zealand Delegates to tht World's Poultry Congress were entertained at dinner by the three British Societies—Poultry Club, N.U.P.S., and the S.P.B.A.

Mr. Stanley Street-Porter, as President of the National Poultry Council, presided, and there were present, among others :—

The Hon. Florence Amherst; Mr. and Mrs. Rhoades and Professor Fred Elford (Canada); Professors Thompson, Phillips, Dr. and Mrs. Haring and Kirkpatrick (United States); Mr. and Mrs. Merrett (New Zealand); Mr. P. A. and Miss Francis; Mr. and Mrs. Marcus Slade; Mr. and Mrs. S. H. Lewer; Mrs. Hunter; Mrs. Rawson; Miss Maddison; Miss Gordon Barrett; Miss N. H. Bell; Messrs. H. E. Dalle, J. Meekings, C. A. House, P. Hedworth Foulkes, Tom Newman, Lester Spurgeon, J. G. Kitson, J. H. Dowden, Leslie Williams, R. Fletcher Hearnshaw, T. R. Robinson, A. P. Grant, H. Newbury, Alderson Smith and Clem Watson.

After the Loyal Toast and the President of the United States had been honoured, Mr. P. A. Francis, the Poultry Commissioner, proposed "Our Guests." In a very humorous speech he said that the gathering was an epoch in the history of the poultry industry, and spoke of the pleasure it had given them to meet the Delegates from Overseas. He thought they should look at it, not only from the point of view of their own industry, but as a link in the chain which would bring their friends from over the Herring Pond nearer to England. They were all of British blood and had the same instincts, and the more they met, and the better they understood each other, the more they were likely to forge one link in the chain which would make for the peace of the world.

The next Congress was to be held in Canada. On that they would congratulate their Canadian and American friends. He hoped that a large number from the Old Country would make the journey. He was sure that everything would be done to make it the best Congress ever held.

Professor Kirkpatrick, who responded for the visitors, said it was very difficult to follow such an eloquent speaker as Mr. Francis. He said they had the highest respect for him when they had the pleasure of meeting him on the other side of the Atlantic, and that respect had increased since they had been with him in Europe. He desired to thank them all for the manner in which they had been entertained and received by the breeders of England, who had given them a right royal time. He thought they had seen a great deal in the short time they had been here. They had been taken over backyard plants and over farms carrying from five to eight thousand birds, and were going back home with a very differeent idea of poultry farming in England than that with which they had started. They had travelled from Sussex to the Scottish border, everywhere they had been received with the greatest kindness.

In New England he said they had a saying that "Life was one darn thing after another." With this country it would seem that "life was one darned **good** thing after another." That made the difference.

They were sorry they had to leave it after such a short stay, but it would always leave the happiest memory in their minds.

Professor Elford paid a great tribute to Mrs. Rawson, who was responsible for all the arrangements which led to this happy gathering. He said that he came to Spain to come to England. He was not surprised that Englishmen were proud and fond of their country, and what he had been told of it was not half the truth, more especially was he impressed with Rural England. He was proud of it and proud that he was an Englishman. He had come there with the idea that in connection with the poultry industry, Canada could teach England something, but he was returning with the idea that England could teach Canada a lot, and that he personally had learnt a lot, and seen a lot which he had never expected to see. Possibly he would not have worked so hard for the next Poultry Congress to be held in Canada had he known there was so much in England, and Englishmen had so much to show as they had done, but he wanted England to see Canada—it would do them good even as England had done the Canadians good.

He hoped the associations of the past few weeks would tend to greater knowledge, greater love, and greater respect for each other. He had no patience with people who said the world is getting worse. It could not be getting worse with the men and women of to-day. He was going back to Canada a better man than when he left it.

Mr. H. E. Dale, Ministry of Agriculture, in giving "The Poultry Industry," remarked on its value as a promoter of international amity, and he also said that there was a great promoter of amity in Whitehall itself. They at the Ministry appreciated the gratitude and friendship that the poultry industry had shown towards the Ministry, and he felt that the industry now really appreciated what the Ministry was trying to do for it. No industry was held by the Ministry of Agriculture in closer and more friendly relations.

Mr. S. H. Lewer, as President of the British section of the Congress, who responded, said it was a very great honour to reply to the toast. He had fortunately been in Barcelona and witnessed at first hand all that had occurred there and had shared with Mr. T. R. Robinson and Mrs. Rawson, though in a lesser degree, the responsibility of looking after the members of the Congress. The party which caused him the most anxiety was that known as the "Yellow Peril Party," more particularly the scientific members of that party. It had been a very great pleasure to them all to meet the American and Canadian delegates in Spain and again that night. That was a greater inducement than anything else for them to visit Canada when the Congress was held. With the United States practically on the door-step they might be sure that that Congress would be a most wonderful event, and he hoped that the Old Country would be adequately represented there in 1927.

Dr. Phillips, United States, after a very humorous beginning, concluded on a more serious note. He said that the brightest spot which the Americans had struck was England. He commented on the fact that the problems here were the same as those which they were trying to solve. It was important that they should endeavour to dignify the hen in the eyes of the world. He impressed upon agriculturists generally its value as an economic proposition. They had achieved much in this respect during the past ten years in Great Britain, and this would give them strength on their return to proclaim more loudly for the hen her right place in agriculture.

Professor Kirkpatrick then proposed the Chairman, to which Mr. Stanley Street-Porter suitably replied.

Market Report.

THE MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, 13th JUNE, 1924.

GRAIN AND FEEDING STUFFS.—The few parcels of English wheat which have been on the markets during the past week have commanded fully late rates, but they are mainly taken for poultry feeding. Imported wheat is only moderately active, and prices are variable, but, on the whole, show little change. Imported grinding barley is in fair demand, and prices are inclined to advance, except at London, where an easier tendency is in evidence.

Oats are quiet and inclined to fall in value, No. 2 Canada Western averaging 26s. 6d. per 320 lbs. (9s. 3d. per cwt.), compared with 26s. 9d. per 320 lbs. (9s. 4d. per cwt.) last week. Argentine maize is distinctly cheaper, in consequence of larger supplies and a dull demand, now averaging 10s. 1d. per cwt., or 3d. less than a week ago.

Bran has experienced a further substantial reduction, averaging £6 7s. 6d. per ton, as against £7 16s. a month ago, but middlings, although in but moderate request, are only fractionally lower at £8 13s. per ton. Maize products are cheaper, in sympathy with the fall in maize prices. Oil cakes meet a fair trade for the time of year.

MILLERS' OFFALS.—Bran (British): Bristol, £7 7s.; Hull, £5 12s.; Liverpool, £6 5s.; London, £6 5s. Broad Bran: Hull, £6 12s.; London, £7 10s. Middlings: Fine (Imported): London, £9 7s.; Coarse (British): Bristol, £9 5s.; Hull, £8 15s.; Liverpool, £8 5s.; London, £8 12s. Pollards (Imported): Bristol, £8 2s.; Hull, £7 5s.; Liverpool, £7. Rice Bran: Bristol, £7 10s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £10 15s.; Hull, £10 3s.; London, £10 10s. Maize Meal: Bristol, £12; Hull, £10 10s.; Liverpool, £10; London, £11. Maize Germ Meal: Bristol, £10 15s.; Hull, £9 15s.; London, £9 2s. Maize Gluten Feed: Bristol, £11; London, £8 15s.

EGGS AND DEAD POULTRY.

Eggs show no material change in price, but dressed poultry is in improved supply and easier in value, first quality chickens averaging 1s. 10d. per lb., or 3d. per lb. less than a month ago.

Week-end prices—Eggs (per 120): British: 14s., 13s. 3d.; Irish: 13s. 6d., 13s 3d.; Danish: 16s. 6d., 14s.; Dutch: 16s. 6d., 14s. 6d.; Polish: 11s., 9s. 9d.; Belgian: 14s., 13s. 9d.; Lithuanian: 11s. 6d., 10s. 6d.; Egyptian: 9s., 8s. 9d.; Italian: 14s., 13s. 3d.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 7d., 2s. 2d.; Irish, 1s. 10d., 1s. 8d.; Others, 2s., 1s. 8d. Ducks, 1s. 10d., 1s. 7d. Geese, 1s 4d., 1s. 2d.

EGGS.

Per Doz.—Ashford: First, 1s. 5d.; Second, 1s. 4d. Birmingham: First, 1s. 3½d.; Second, 1s. 3d. Bridgwater: First, 1s. 3½d. Carlisle: First, 1s. 4d. Chelmsford: First, 1s. 5½d.; Second, 1s 4¼d. Derby: First, 1s. 3d. Dorchester: First, 1s. 3¼d. Exeter: First, 1s. 3d. Hereford: First, 1s. 1d. Hull: First, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 3d. King's Lynn: First, 1s. 2d.; Second, 1s. 0d. Lincoln: First, 1s. 3d. Llandilo: First, 1s. 1d.; Second, 1s. 0d. Montgomery: First, 1s. 1d. Newport (Mon.): First, 1s. 3d.; Second, 1s. 2d. Norwich: First, 1s. 2½d. Oswestry: First, 1s. 5d.; Second, 1s. 4d. Penzance: First, 1s. 2d.; Second, 1s. 1d. Salisbury: First, 1s. 4d.; Second, 1s. 3d. Shrewsbury: First, 1s. 2d.; Second, 1s. 1d. Skipton: First, 1s. 1d. Truro: First, 1s. 3d.; Second, 1s. 2d. York: First, 1s. 4d.

FOWLS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 10d. Derby: First, *6s. 0d.; Second, *3s. 6d. Exeter: First, 1s. 9d. Hereford: First, 1s. 9d. Ipswich: First, 1s. 10d.; Second, 1s. 8d. Lincoln: First, *5s 0d.; Second, *3s. 6d. Llandilo: First, 2s. 3d.; Second, 2s. 0d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Truro: First, 1s. 4d. York: First, *5s. 6d.; Second, *4s. 9d.

DUCKS.

Per lb.—Birmingham: First, 1s. 10d.; Second, 1s. 6d. Exeter: First, 1s. 8d. Hereford: First, 1s. 6d. Llandilo: First, 2s 4d.; Second, 2s. 2d.

* Per Head.

EGGS

The Official Organ of the Scientific Poultry Breeders' Association.

Wednesday, June 25th. 1924.

Contributions.—The Editor will always be pleased to consider contributions. Criticisms and queries are invited.

Interested readers are asked kindly to mention the existence of "Eggs" to their poultry-keeping friends.

Subscriptions to "EGGS," 12s. 8d. per annum; 6s. 4d. for six months, 3s. 3d. three months, post free.

Subscription to S.P.B.A., 5s. per annum.

Subscriptions should be sent to Mr. **TOM NEWMAN**, The Beeches, Rudgwick, Sussex.

Editorial Matter and Correspondence to the Editor, The Beeches, Rudgwick, Sussex.

All communications with regard to Advertisements should be addressed to Mr. S. H. Burles, "Eggs," 94, Farncombe Street, London, S.E.16. Telephone: HOP 894.

NOTICE TO ADVERTISERS.

Owing to the ever-increasing circulation of "Eggs," it is imperative that new advertisements and alterations are received by FIRST POST ON FRIDAY MORNING to ensure insertion in the following Wednesday's issue. It is hardly necessary to add that the earlier in the week we receive copy the better it is for everyone concerned.

Classified Advertisement Rates will be found at top of first page of classified advertisements.

EDITORIAL.

ENVIRONMENT.

Environment has been defined as, *all the external conditions of life, such as climate, food, etc.; in fact, all the outside influences among which an individual finds itself born, and with which it must live on the best terms possible, if it is to live at all.*

We can realise that environmental conditions must exert an extraordinarily powerful influence. We know that it is selective, for individuals which are unable to adapt themselves to it must perish, and, leaving no descendants, the next generation, being descended from those who have adapted themselves to their environment, will live more in harmony with it.

Let us consider this. *The characters of the individual are the characters of the race.* Davenport says:—"Every quality inherited or acquired by an adult individual is possessed in *some degree* by every normal adult individual of the same race."

We take the following from a letter from a correspondent. After relating an experience of his own he says that he has a growing conviction of the following nature:—

> (1) "That the Mendelian laws do not hold completely with an artificial product, such as a hen bred (under strain) to continuous high fecundity. It is under strain, since if you ceased to impose special dietary and other conditions it would rapidly revert to type.
>
> (2) "That (in agreement with you) environment for a particular species has a tremendous influence.
>
> (3) "New blood, irrespective of particular strain, providing it is healthy and strong, is required every second breeding.
>
> (4) "That success in high egg production is entirely a matter of the 'survival of the fittest,' and I am not very sure that No. 4 is not the kernel of the nut, if we could only be sure of always selecting the fittest."

We must consider the first more particularly in relation to the words *under strain*, and remember that high fecundity is individual, and not racial. The highly-fecund hen has this character of her race in the *higher degree;* her low fecund sister has it in the *lower degree* It is probably that she has other characters of her race in higher degree than her highly fecund sister, and that these are dominant, thus preventing her becoming highly fecund. In her sister these other characters may be recessive, so she becomes highly fecund. That is crudely put, but perhaps our readers will appreciate the meaning. Now when we come to that question of "under strain," we must appreciate that whatever the environment, the low fecund sister can never become highly fecund, but she may respond to the environment in a different manner either in increased size, in wealth of feather, in body fat, or in some other respect. The response of the highly fecund sister to the favourable environment is *egg production*. Should the environment become unfavourable, she will not revert to type. She will simply be a high-power engine, capable of running 60 miles an hour, reduced to half speed because of inferior fuel. Reversion to type will only occur when individual selection ceases, or by the interbreeding of cross-breds. If we take two plants, and place one in a fertile valley, and the other on a mountain top, the one will probably grow luxuriantly, while the other may be stunted in growth. The latter would not be a case of reversion to type, but simply one of unfavourable environment preventing maximum development.

We are all agreed, that environment does exert a tremendous influence, but unlike our correspondent we cannot agree that it is limited to a particular species, perhaps that is not what he meant to convey. With reference to his third contention. The necessity for the introduction of new blood would have no direct connection with environmental conditions, but they may be so unfavourable that the effect upon the stock would be such as to give the impression of inherent weakness. One cannot lay down hard and fast law on this point; so much would depend on individual selection. While being wholly against in-breeding, or even line-breeding for heavy production, we fail to see the necessity for new blood every second breeding, always provided that selection has been right.

His fourth contention is "that success in high egg production is entirely a matter of the "survival of the fittest." If by this the physically fit is meant, we venture to disagree, because although physical fitness is necessary to high egg production, the physically fit is not necessarily the high producer. The highly fecund hen is inherently so. It is hardly correct to say that we have "produced" her, for there is no doubt that she has always existed. It would be more correct to say we have "discovered" her, and by placing her in a favourable environment have enabled her to give "expression" to the inherent character. We assume that we have "discovered" this individual, whose dominant character is high production. "Like tends to beget like," so we mate her to the son of an individual possessing similar characteristics, and so produce a strain which will in the main be characteristic of the original parents. Of course, there will be variation, the greater if we introduce new blood without a thorough knowledge of its history. That variation may be very wide. The environmental conditions may be such as to induce maximum development—that is maximum production—or they may be such as retard it, but in neither case is there a departure from type.

We cannot see that the "survival of the fittest" is the kernel of the problem; rather we should say it is the discovery of the "fittest" and its perpetuation.

We realise that just as the upper limit of the size of an animal is determined by heredity, so is the upper limit of egg production. What production it may attain within that limit must depend on the way it is nourished during its existence. In fact upon the environmental conditions. Those conditions may be such that the maximum production may be attained, and they may be such that individuals may be so weakened that in a generation or two a strain may cease to exist. They may influence the development of the embryo in the incubator, may retard maturity, influence the size of the bird, the number and size of its eggs, and necessarily its value as a breeder.

In discussing environmental conditions we often speak of the "survival of the fittest," and contend that as the unfit perish, and the fit survive, the race is the stronger. That is hardly true. We must not compare the survivor under our artificial conditions with one under natural conditions. One might say that in the case of the former too many survive, because they are encouraged to do so, while in the latter they survive because their powers of resistance enable them to do so. Under our artificial conditions it too often happens that 50 per cent. of a brood survive; they may be the "fittest," but are not always the "fit." It is perfectly certain that the most urgent problem before the poultry-keeper now is the study of environmental conditions. It is a very big problem, our attempts to get nearer to nature have not so far been very successful. Perhaps we mis-read her.

Modern Poultry Feeding.

By TOM NEWMAN.

ALBUMINOID RATIOS—FOOD UNITS.

Some months ago, when writing of the work of the S.P.B.A. in these columns, I referred to the fact that we were the *first to point out the fallacy of the belief that by calculating the albuminoid ratio we could arrive at a balanced ration*, and the "first to show that nothing was gained by calculating the food units in the mash." This was some eight years ago, and I have not the file of "Eggs" with me to refer to. An American correspondent writes that these statement so thoroughly harmonise with his own ideas that he would like further information.

The method of calculating the albuminoid ratio is to multiply the fats by 2.3, add to this the total carbohydrates, and divide by the total albuminoids.

The definition of a balanced ration is: "One which contains the proteins, carbohydrates, fats and mineral salts in their proper proportions."

Now let us take two mashes with approximately the same albuminoid ratio, and compare them, and we shall see why we cannot arrive at a properly balanced ration by this means:

A.		B.	
1.	Bran.	4.	Bran.
1.	Clover.	1.	Maize.
4.	Middlings.	1.	Middlings.
1.	S.G.O.	3.	Clover.
1.	Maize Meal.		
1.	Meat and Bone Meal.		

Now the assumption is that with two mashes with the same albuminoid ratio, we have two mashes of equal nutrient value. On the face of it it is not so, and if it is not so, then it proves how futile it is to suggest that we can arrive at a balanced ration in this way. The second is a thoroughly bad mash in every way; 25 per cent. of the clover is indigestible fibre, the bulk is very excessive, so that appetite may be satiated without the bird being sufficiently nourished, and the protein is incomplete. It is all vegetable protein, which, as my readers are aware, is considerably less valuable than animal. In A., on the contrary, the bulk is not too great, the protein is complete, it does not depend entirely on the vegetable protein. Further in this method of arriving at a balanced ration, we ignore altogether the mineral and fibre content, so that we may have a mash very deficient in its mineral content, with an excessive fibre content, likely to cause digestive trouble, and an inferior protein, and yet assume because it has the correct albuminoid ratio that it is a balanced ration.

To arrive at the total food units, the albuminoids are multiplied by 2.5, and the fats by 2.3, the two results are added to the carbohydrates, and the total gives the food units. Now it will be seen that it entirely disregards every factor save these three. The mineral salts are ignored, the *value* of the protein, and also the percentage of fibre. Take these three mashes:

A.	B.
2. Bran.	1. Bran.
4. Middlings.	1. Middlings.
1. Maize Meal.	5. Maize Meal.
1. S.G.O.	1. S.G.O.
1. Fish Meal.	1. Fish Meal.
Total Food Units: 994.	Food Units: 983.

C.

4. Palm Kernel Meal.
1. Malt Culms.
1. Gluten Meal.
1. Barley Meal.
1. Alfalfa Meal.
1. Maize Germ Meal.

Food Units: 995.

Now it will be seen that all these formulas have approximately the same number of food units. In B. we have the same ingredients as in A., only the quantities differ, yet B. is a totally unbalanced ration, and would be a very unsuitable one to use. While it is obvious to anyone that A. is incomparably superior to C. So that calculating the food units in a ration will not help us much as to its value. Or to put it this way: The total food units of fish meal and linseed are 159 and 163 respectively. But the protein is 60 in the one case, and 23 in the other.

REARING OF CHICKENS ON THE INTENSIVE SYSTEM.

By R. H. A. PLIMMER and J. L. ROSEDALE.

(*Continued*).

THE FOOD OF POULTRY AND ITS ADAPTATION FOR INVESTIGATIONS OF NUTRITION.

Poultry is commonly fed upon a mixture of cereals or cereal products, fish or meat meals, clover, yeast, green food. Green food is always said to be most essential.

A complicated mixture is of no use for purposes of investigation. Although the composition of a mixed diet can be calculated from the chemical analysis of its components, no proper idea of the necessary quantity of each kind of chemical substance can be learned until the food mixture is reduced to a smaller number of ingredients. Green food is a particularly variable article, varying in composition according to climate and period of growth, and must be eliminated from any experimental diet.

One kind of grain and fish or meat meal, or some other source of animal protein, will furnish carbohydrate, fat and protein. They can be adjusted to any desired protein ratio. Mineral salts in such a mixture are not likely to be too small in amount nor in wrong proportion; more can be added if necessary.

The relatively small amount of green stuff eaten is not likely to make any difference to the constituents furnished by grain and animal protein; in the ordinary way its function is to furnish vitamins. Some extra mineral matter may also be supplied by it, and its amount is not likely to be large, since green food has on the average 90 per cent. of water. All three vitamins are present in green foods. Cabbage and lettuce are known to be good sources of C-vitamin. Green leaves are also rich in A-vitamin, but relatively poor in B-vitamin. The bird usually derives its supply of B-vitamin, and a certain amount of A-vitamin from grain. Green stuff can be omitted altogether if other foods containing the vitamins are given instead.

For scientific experiments cereals, such as white rice and white flour, which contain little or no B. and A. vitamin, should be chosen. It is more difficult to find a protein free from A. and B. vitamins. Egg white is one; white fish flesh also contains practically no vitamins. Most dried foods have no C-vitamin, so this vitamin can be avoided in the foods selected for protein, fat and carbohydrates, if they are given in the dried state.

To such a practically vitamin free basis the vitamins can be added in measured amounts of very concentrated extracts. The most convenient extracts for the purpose are: Cod liver oil for A-vitamin; yeast extract or marmite for B-vitamin; lemon or orange juice for C-vitamin. The first problem in the successful rearing of chicks is to determine the amount which they require of each vitamin. Knowing the basis of vitamins, in terms of these extracts, for maintaining the birds in health, a start can be made with the determination of the value of the other ingredients. By using different proteins their value can be separately determined. The value of the protein in various kinds of grain can be found out, and then in a combination of grains. The B-vitamin content of different grains can be ascertained by a similar sort of experiment in which the other ingredients of the diet are fixed, and only the amount of B-vitamin is variable.

Theroetically the question of the total amount of food that should be given to chickens is not directly answered by these kind of experiments. A calorimeter is needed for this purpose. The actual food consumption of the birds is, however, given by these experiments since the whole of the food supplied is carefully weighed out, and the record of the amount eaten is kept. The conditions of these experiments are more nearly normal than those in a calorimeter, and can cover the whole period of growth. The record of the food consumed is a guide to the total food requirements of the bird. It will be seen from our records (p) that the food actually consumed corresponded with that advised in the text books. It was found, for example, that the adult bird, fed ad lib., consumed from 4ozs. to 5ozs. of food daily in our experiments.

(*To be Continued*).

POST YOUR COPY EARLY.

Advertisers are frequently disappointed in not having their advertisements appear in "EGGS," through the Copy not reaching us in time. This is due to the alterations in the postal delivery times

We would therefore request that Copy should be posted not later than Thursday.

Scientific Poultry Breeders' Association

Full particulars of membership will be sent by return on application to the Secretary, Mr. Tom Newman, The Beeches, Rudgwick Sussex.

IS GRIT NECESSARY?

To the Editor of "Eggs."

Dear Sir,—Now that you have rested from your trip abroad, and also waded through that mass of correspondence which must have accumulated during your absence, I would respectfully request that you again read my notes, and then you will find I do not look upon the crop as a mere storage. I clearly state that the food goes through a softening or soaking process, which surely is an admission that the crop is the first stage of the digesting process.

Now as to the gizzard. Here you seem to labour the point very much. There is cutting and cutting, both with a razor and with a stone. Let me illustrate the point. First, take some wheat, oats, or maize, and soak for a definite time. Take a portion of this and place in the palm of the left hand, and gradually pulp together with both hands for an hour. Then take the remainder, BUT mix with this portion some sharp flint grit, and pulp together in a similar manner for one hour. Then compare the two lots, and note the difference in the grinding. It only stands to reason that the portion that has been crushed with the grit will be much finer, and will not require so much work from the gizzard as the other lot. Please try it first, and argue this out AFTER.

I note, Sir, you quote two scientists as a basis for your contentions. I much prefer the practical experience of well-known poultrymen, who run their farms for their living. You will be surprised to hear, perhaps, that I do NOT know by repute either of the gentlemen in question. I never read scientific works, only as a means of profit to myself and the industry. The scientist obtains his knowledge REGARDLESS of expense; the average poultry-keeper has to study expense first.

Dealing with the tale of the glass balls, one cannot say much here until one has all the facts before them, such as feeding, etc., but no doubt the internal chemical action, or, if you like, the gastric juices of the gizzard, play a very important part in breaking down the substances or, in this case, glass balls, which clearly show how very important it is to feed foods with a large mineral content.

The South African Magazine is very much behind the times, or was short of copy in quoting birds that had had nothing but caked lime. I fed this over twenty years ago.

You certainly seem to miss the essential point of your own LEADER. You argue "IS GRIT NECESSARY?" and you go to show that it is not, AND YET you state that birds will keep in PERFECT health with ONLY oyster shell. WELL, WELL, surely everybody knows they will. BUT will you please tell us just how you propose to feed oyster shell as a food, or for its mineral content ONLY without it being used by the birds as grit.

I am not a member of Maskelyne and Cooks', or I might be able to answer this myself. Now, sir, as you don't believe in grit, will you please answer this. Do you feed grit to your stock? I mean grit of any kind—limestone flint, oyster shell, cinders, ashes, or any thing of a similar nature. Of course, you do. You perhaps feed it only as a shell former? Um! yes, I take whisky as a medicine (perhaps not).

Dealing with the cattle subject, I cannot accept that ruminants are the same as poultry, because cattle are ONLY herbivorous, and fowls are both herbivora and carnivora. Again, poultry don't, as a rule, take more than, say, four hours to digest their foods. I say this in the broad terms, whereas cattle no doubt take, perhaps, double this time, if not longer. Oh, yes, I have had to do with cattle, plenty of them, especially dairy stock. If you accept the statement of the HIGH authority, why not turn your fowls out to grass, and feed them only upon the same foods as cattle? You would save a lot of cash. You, sir, should have the courage to put your theories into practice, and you would get a very rude awakening in this matter.

I merely stated: If we do away with the grits and green foods. I did not advise it. Oh, no. I am not such an idiot as that. Just fancy a chap who claims to be a PRACTICAL poultry-keeper telling readers of "Eggs" to do away with green foods? I would respectfully point out, sir, that my article was written for a scientific poultry paper, and not a Novelette.

If further proof is wanted as to my opinion of green food, some of your readers may have a copy of my booklet, "A Straight Talk on Poultry Matters," in which I stated green food, such as cabbage, was worth its weight in gold as a green food, and I should certainly suggest you read my notes upon this again.

Coming to the question of buying foods ONLY by their analysis, this again should be accepted in the broad sense. Let me illustrate the point. A poultryman not versed in good and bad quality OATS, looks up the analysis, and, reading that a good food should contain such and such parts of albuminoids, carbohydrates, etc., he buys some oats of, perhaps, WAR-time quality, and feeds them to his stock, with awful results, as far as eggs are concerned. BUT he knows it can't be the feeding, BECAUSE he fed food of good analytical value instead of using his BRAINS, and, understanding that the analysis of anything can ONLY be based upon the sample submitted to the analyst, and not accept it that ALL oats or other foods are ALWAYS EQUAL to the submitted samples.

There is such a thing as science run mad, and we seem to be approaching this stage very fast. It is science, this science or the other, till the poor novices, ay, and others too, are weary of it all, and dread to read any more, in case another AUTHORITY says something different to the others. Give me the practical men who have been through it and carved their ways ahead; men, who whilst accepting science as a valued friend, never allow it to dominate their actions in place of common sense. We are told that science is the PRACTICAL application of COMMON sense. It is nearly time that some of us dropped a little of the science and used our commonsense. When we do this we shall save quite a lot in cash, and not a little in brain fag.

Dealing with the question of maize not requiring grit to help to digest it, I shall be pleased to be enlightened upon this point. I am always open to learn, but at present am still thinking it is necessary. Dealing with theory 2, I suggest, sir, that this should read: The Editor Thinks Grit is not NECESSARY, but he KNOWS oyster shell IS.

In your final note you are again wrong, as the reader clearly stated he had run short of grit for some time.

Yours truly,
A. J. HEINZE.

Do readers realise my sad position? Last week I was reproved for setting up a lay opinion against a scientific one. Now we have Mr. Heinze, who apparently objects to my quoting a scientific opinion against a lay one. Will he allow me to say that my practical experience is, at least, as long as his own, and to add that I have found the so-called *practical* man the most *impractical* in the world, and far more likely to confuse the novice than the scientist. I can easily demonstrate this to him if he wishes it.

We appear to have thoroughly misunderstood each other, and I will deal with the extraneous matter in his letter first, and then come to the point.

No one suggested that Mr. Heinze advised doing away with green food. We merely asked what induced him to write of it, as it was not pertinent to the argument, and it had not been mentioned by anyone but himself.

Again, why bring in the question of buying foods on their analysis? Presumably this was because I suggested grit should be bought on analysis, but was this not justified when it was shown that one sample may contain 46 per cent. insoluble sillicious matter, and the other 2 per cent.?

No one suggested that foods should be bought only on analysis.

Now I first wish to apologise to Mr. Heinze for saying that he looked upon the crop as merely a place of storage. He is correct. He did say the food goes through a soaking and softening process.

Secondly, I am so constituted that I really could not spend a couple of hours, as he suggests, even to prove my own theory. I congratulate him on the patience which he possesses, and I do not.

Thirdly, I do not think he would find that the gastric juices would have much effect on those glass balls, as 63 per cent. of common glass is *insoluble* silicious matter.

Fourthly, I never said that ruminants were the same as poultry, and I must respectfully suggest that *Mr. Heinze* reads *my* notes again. I said "the crop corresponds to the paunch or rumen of the ruminant quadrupeds," and to that I still adhere. To compare the crop and the rumen is not to say that cattle and poultry are the same, neither does it indicate that their digestive systems are the same.

> "In the act of rumination the animal first swallows cropped grass, which has been abundantly mixed with saliva, the food passing into the rumen or paunch. There it is moistened, and passes thence into the reticulum."

Now, Mr. Heinze, please tell us in what respect the rumen differs from the crop, the fact that cattle are herbivorous and fowls omnivorous does not affect this question.

Fifthly, as Mr. Heinze appears to think I am trying to hedge, I say explicity that I do not believe fowls swallow grit to enable them to *masticate* their food, and that hard flint grit, containing as it does such a high percentage of insoluble silicious matter, is likely to do more harm than good.

But all this argument is so much waste of time, and I make the following suggestion, which would settle the matter once and for all. At a convenient date two lots of day-old chicks of the same breeding, and as nearly as possible the same weight, shall be procured and reared under hens for preference; fed in exactly the same way, and the one lot shall be given flint grit, and the other no grit of *any* description. They shall be both reared on peat moss litter to the age of six weeks. A comparison can then be made first by weight, then of their comparative health and vigour. The result can be published in "Eggs." I will pay for the chicks and the food and the litter, if anyone will undertake to carry out the experiment.

REPLACEMENTS.

Some time ago I wrote an article on the question of replacements, that is to say, whether the cost of replacing such a high percentage of the stock, as is usually practised on the commercial egg farms, was justified. The subject is of the utmost importance, and I hoped that some of my readers would produce a little evidence, but none has been forthcoming.

Now Mr. Duff has been kind enough to send me the following figures. They do not help us much, because in the first place, Mr. Duff has trap-nested stock, and I was thinking more particularly of the commercial farms; and in the second they do not deal with a sufficient number of birds, and the period is too short. Thirdly, if Mr. Duff will forgive my saying so, I think he has miscalculated when he puts the cost of hatching and rearing a pullet to the laying age at 5s. That is not "all in." However, here are his figures:—

PULLETS.

126 birds laid an average of 54 eggs each in November, December, and January. Value of eggs laid per bird at 3s. per dozen, which represents average wholesale price is	13s. 6d.
Cost of hatching and rearing, per bird	5s. 0d.
Cost of feeding during Nov., Dec., Jan. ...	2s. 6d.
Balance	6s. 0d.
Profit per bird, February, March ...	3s. 6d.
	9s. 6d.

HENS.

"Value of eggs laid November, December, January, by 28 second year hens was approximately equal to value of food consumed, viz., 2s. each. Profit per bird during February and March, 1s. 6d. During April and May results have been practically equal, viz., 3s. profit per bird for the two months in either case.

Thus in my case the pullets were more profitable than the hens to the extent of 8s. per bird for the first five months.

Obviously, of course, these figures are nothing to go by, as the number of birds taken into account is too small. It may well be that others have had much better results from their second year birds.

Anyhow I would like to see the matter thoroughly threshed out, and hope somebody will think it worth while to provide the necessary information."

Now who is going to provide it, and will some of my readers be kind enough to let us know what it costs to *produce* a pullet to the laying age, as this has an important bearing on the question?

Membership of the S.P.B.A.

So many of our readers are under the impression that they must necessarily be scientists, pedigree breeders, or farmers on a large scale to render themselves eligible for membership of the S.P.B.A. This idea is quite incorrect. The S.P.B.A. is out to assist all grades of poultry-keepers, from the proprietor of the 10,000 hen farm to the intensivist with his dozen or so birds; all are entitled to equal benefits. The Five Shilling Subscription brings with it many advantages, namely: Free Advice by Post, a Copy of the Annual Register, the Benefits of the Discount System, and many other advantages too numerous to mention here. You should write for full particulars to the Secretary, TOM NEWMAN, The Beeches, Rudgwick, Sussex.

THE SUSSEX POULTRY CLUB.

A Committee Meeting of the above was held at 3, Vincent Square, S.W.1, on Wednesday, the 11th inst., at 12 noon

In the absence of Mr. J. Russell (the President), the chair was taken by Mr. Fleetwood, Ashburnham. Other members present were: Messrs. A. P. F. Grant, A. Amey, F. W. Rogers, T. R. Robinson, and the Secretary, the Rev. H. Mayall.

Apologies were received from Major Morrison, Messrs. Clem Watson, Cree, Goode and the President.

After the minutes of the last meeting had been read, confirmed, and signed, the question of awarding medals for the current laying trials was considered. It was proposed by Mr. Grant, and seconded by Mr. Rogers, that the awards for laying trials, as far as the Harper-Adams' Test and the National Test at Bentley, are concerned, be applicable for 1923-24, so far as it is practicable, and subject to the club rules, applying thereto, even though the judging be retrospective. This was unanimously agreed to.

UTILITY NEW SUSSEX CLUB.—It was proposed by Mr. Grant, and seconded by Mr. Robinson, that a resolution, re the affiliation of the club be sent to the Council of the Poultry Club.

After other minor business had been dealt with the date of the next meeting was fixed for Wednesday, August 6th.

EGG PRICES.

A NON-PRODUCTIVE BRANCH OF THE FARM.

(To the Editor of "The Mercury.")

Sir,—The prices which are being paid to poultry farmers in Lincolnshire for new-laid eggs must make them think furiously when they meet their corn bill.

To-day's market price for foreign eggs, many of them of uncertain age and quality, is as follows: Irish 13s. 6d. per 120, Danish 16s., Dutch 15s. 6d., Belgian 13s. 0d., Italian 14s. 6d., Polish 11s. 6d., Lithuanian 12s., Chinese 11s. 6d. In comparison with these prices, Lincolnshire farmers are being paid 1s. 1d. per dozen, or 10s. 10d. per 120, for the fresh home-produced article.

Is there any reason for this, beyond the fact that the present methods of marketing are prehistoric and ruinous to the producer? What is the method upon which the egg-collectors work? Is there a ring, by means of which they all fix and offer the same price to the farmer irrespective of the cost of production, the seller apparently having to accept this price, there being no alternative offers? These conditions prevailed at one time in East Anglia until the Framlingham Co-operative Society was formed.

The present price of millers' offals, or poultry appliances and labour, are practically double those of 1914. To-day's price of eggs at 10s. 10d. per 120 is, therefore, equivalent to 24 eggs for one shilling in 1914, which position certainly did not exist.

Considering that a large percentage of farmers obtain very few eggs in the October-January period, and at the same time have to maintain their yearling moulting hens for practically four months on a non-productive basis, it is almost certain that the present prices in the majority of instances must make poultry farming an unprofitable business. The collector and the retailer make sure of their profit. Why not the producer, who is a seven-day-per-week worker?

It is quite time that the business was taken out of the hands of these rings and placed upon a co-operative basis with an organised system of collection and distribution, otherwise egg production will follow the same trail as potato-growing, with the exception that the foreign egg will prevent prices soaring too high.

Producers should meet and combine to work out their own salvation.

Yours, etc.,

FRED W. WAIT

(Member Council Scientific Poultry
Breeders' Association).

Burton Joyce, Notts.

The above letter appeared in the "Lincoln Mercury."—(Ed.)

Correspondence.

Re S.P.B.A. FOOD SCHEME.

To the Editor of "Eggs."

Dear Sir,—The pet aversion at the present time is a pen, but the apparent lack of response to the above has driven me to desperation. I have kept silent hitherto, as owing to an inconvenient situation and lack of accommodation, I am only able to maintain a small head of stock, the food bill for which probably runs to above £50 per annum, and since, in my opinion, the advantages of the scheme are principally to the small man, I waited for advances to be made by established poultry farmers.

What occurs, to my mind, as the principal feature of the scheme, is the greater possibility of maintaining a more uniform quality of feeding stuffs by being able to take large consignments, as compared with the present practice of purchasing from a local miller with a limited trade, the bulk of his stock being purchased almost indiscriminately.

To take the two common items of Bran and Middlings, which we practically all use, as an example, I find it is extremely rare that I get two successive samples alike. It is now about ten weeks since I had a decent sample of broad bran, and about three months since I had a good supply of middlings. The latter, in fact, being so good that I felt compelled to take a quarter of a ton, and take the chance of keeping it fresh. Maize Meal is a very variable quality, the differences in which are not appreciated. It is not so long since one so-called miller told me that the only difference between maize and maize germ meals being that one was white and one yellow!

With these difficulties of obtaining supplies one never knows whether one is "going or coming," and cannot, as far as I can see, be remedied except by such a scheme as now put forward.

From the point of view of the large farmer, also I cannot see that he can possibly fail to benefit, even supposing, which I very much doubt, that he cannot buy more cheaply. The organisation of the scheme should not be elaborate or expensive if the necessary storage facilities should be found, and it should be possible to hire a "Tin Lizzie," say one day a week, or as often as necessary, to deliver within a radius of ten miles. In this particular district, taking an area round the county town, there are numerous members of our association, who would doubtless be glad to join in, and once successfully inaugurated large numbers of new members could be obtained for the parent association so as to become eligible for participation in the Food Scheme. There are any number of would-be owners of a "Ford" who would willingly invest in one if a certain amount of hiring could be guaranteed to help them over the taxation outlay, even if a car is not already available, and if it were arranged for deliveries to be made the day before market, eggs and other produce could be picked up at the same time for delivery the next day, and thus help to reduce expenses.

If it is found possible to commence the scheme in a few districts only, I consider it would be advisable to proceed with it, and its satisfactory working would quickly lead to complete extension.

Yours faithfully,
WEST MALLING.

CROOKED KEEL.

To the Editor of "Eggs."

Sir,—I have read with the greatest interest the letter by "HOW?" on Crooked Keel, in "Eggs" of the 11th inst., and welcome it as an attempt to solve the problem on a higher plane than the usual dogmatic utterances of "Early Perching," etc.

The one point, however, which strikes me is that "How" does not explain *why* the keel should be *crooked.*

If the hen is in process of losing her keel altogether on account of changes in her structure, due to generations of domestication, and the constant disuse of her wings, as is the case with the ostrich, emu and osprey, according to Prof. Harrison Ainsworth, one would surely expect that the keel would become less and less prominent until it had finally disappeared, though still retaining its natural straightness of line in the process.

"How" notes the difference between the wing bones of the domestic hen, and those of wild birds of similar size, but gives no evidence that one of the signs of atrophy is deformity of the bone.

I believe it is accepted that the partial disuse of any particular part of the body results, in course of time, in the diminution in size of that particular part.

For a simple example, it will be agreed that the arm muscles of men who work in offices do not approach in size those of men in such employment as that of the "navvy," but there is not necessarily distortion or deformity in the arms of the office worker.

In conclusion, since "How" invites replies, may I ask him *Why*?, assuming the keel is undergoing some natural process of elimination, should it be *crooked*?

Yours sincerely,
"WHY?"

IS THERE A NEW DISEASE?

To the Editor of "Eggs."

Dear Sir,—Capt. Leeney's remarks on new forms of Coccidiosis in chicks are interesting, and make one wonder if other new diseases are making their appearance in chickens. One hears on all hands that this has been a very poor rearing season, and now it is over one is anxious to find out why and how to prevent a repetition next year.

A glance over your post-mortem columns and personal observation on a number of farms points to the various forms of pneumonia being responsible. While admitting that some of this is undoubtedly caused by bad conditions, such as cold winds, faulty or infected stock, or brooders, bad management, etc., the way in which chickens, from different sources reared in large and small units on identical lines to those which have given splendid results in other years, have gone wrong leads me to thing there may be some new and unrecognised disease, such as influenza, which finishes up with the pneumonia symptoms. Otherwise how can one account for outbreaks which have occurred in new appliances of the most approved type on virgin soil?

My observations of the disease have been that this year certain broods without apparent cause have gone wrong about the fifth—tenth day with casualties of about 50 per cent. during the next week. A few chicks scoured, but the bulk of them looking quite fit up to within a few hours of their deaths, when they just collapse. B.W.D. or Coccidiosis suspected, but post-mortems by two qualified pathologists have invariably given pneumonia or congestion of the lungs.

Internal antiseptics, tonics, mineral mixtures, and various methods of feeding have been tried with no improvement. Flocks in outdoor brooders, under hovers, and round brooder stoves, have been affected similarly, and the various popular breeds seem to be equally liable to it.

I write this in the hope that you or some of your readers may be able to throw some light on the subject. Against Coccidiosis and B.W.D. we have treatment and the blood test, but it appears to me against this new menace we have nothing.

Yours faithfully,
C. B.

COOLING.

To the Editor of "Eggs."

Dear Sir,—In your issue of June 11th a letter appeared from "S.W.C.," disclosing an ingenious theory as to the necessity of cooling eggs during incubation.

He infers from the fact that the volume of the shell decreases on cooling, that pressure will be set up in the air space, thus forcing the egg to breathe.

Such a theory at first by its apparent simplicity disarms criticisms, but did "S.W.C." take into account the possibility of simultaneous contraction in the air space, due to fall of temperature of the air inside the shell? Such a contraction can be by no means negligible, even though the air inside is cooled considerably less than in the external shell.

I think that "S.W.C." will find that air expands (and contracts) at least 80 times as rapidly as an ordinary metal (e.g., copper); and probably the ratio is even higher in comparison with the expansion of the material of which the shell is composed.

Hence if the shell cooled eight degrees and the contained air meanwhile cooled only one degree, the air would none the less have contracted ten times as rapidly as the shell had done. So if we take the air space to be one-fifth of the egg at the time, the total contraction of the air inside would be twice the contraction of the shell. So it seems that the tendency is just the opposite from that suggested by "S.W.C."; and the pressure of the air within tends to get lower on cooling the egg.

Probably, however, it makes little difference whether the pressure of the air inside the shell tends to increase or to decrease on cooling, as in either case the porous nature of the shell would not allow any difference in pressure between the air inside the shell and that outside.

So it seems to me, Mr. Editor, that "S.W.C." is in error from which ever point of view his theory is examined. But as it is such a plausible and seductive theory at first sight, perhaps the above observations may help your readers to retain a true perspective of the problem of "Cooling."

Yours sincerely,
S. J. B.

EGG-LAYING TEST.

THE GLOUCESTERSHIRE REPORT.

A SATISFACTORY RESULT, DESPITE THE WEATHER.

The following is the report on the Gloucestershire Laying Test (under the supervision of Mr. L. G. Price, County Instructor in Poultry Keeping) for the eighth month ended May 16th:—

Despite somewhat unfavourable weather during the past month, the number of eggs collected has remained satisfactory—6,008 being collected, against 5,976 the previous month, giving a total of 36,281 for the eight months and a pullet average of 119.3 in respect of 304 birds competing. A fourth death has to be recorded (Section B.—L.B.), otherwise the general health of the flock is good.

It is interesting to record that on May 30th the Test Ground was visited by American and Canadian Delegates to the World's Second Poultry Congress (Barcelona).

Individual bird records may be obtained upon direct application to the Manager.

Section A.—Light Breed (Professional). (Five birds constitute a Pen).—Major J. G. Dugdale, 3,265 pts.; G. B. Metcalfe, 3,186 pts.; Hinton Poultry Farm, 3,020 pts.: J. L. Brown, 2.937 pts.; T. Godber, 2,929 pts.; Coaley Poultry Farm, Ltd., 2 845 pts. All White Leghorns.

Section A.—Heavy Breed (Professional).—T. L. Davies (W.W.), 3,075 pts.; P. S. Beales (W.W.). 2.975 pts.: H. W. Fowles (W.W.), 2.943 pts.: W. R. Partridge (W.W.). 2.919 pts.; G. B. Metcalfe (R.I.R.), 2,792 pts.; P. M. Hinton (W.W.), 2,719 pts.

Section B.—Light Breed. (Confined to owners of not more than 50 laying head).—Mrs. S. A. Brown, 2,711 pts.; J. A. Hall, 2,490 pts.; Mrs. A. Japp (B.L.). 2.153 pts.: K. Wilson, 2.044 pts.; J. D. Crewdson, 2,012 pts. All White Leghorns except third position.

Section B.—Heavy Breed. (Confined to owners of not more than 50 laying head).—L. Grist (W.W.), 2,931 pts.; Maisemore School (W.W.), 2,869 pts.; Miss M. Lawrence (R.I.R.), 2,184 pts.; C. G. Young (R.I.R.), 2,150 pts.

SINGLE PEN SECTION..

Section 1.—White Leghorns.—Major J. G. Dugdale, 782 pts.; Misses Ransford (12), 747 pts.; L. Grist, 677 pts.; Misses Ransford (2). 655 pts.; J E. Boyd, 634 pts.; Misses Ransford (5), 595 pts.

Section 2.—White Wyandottes.—W. R. Partridge (18), 796 pts.; Philip Clapham, 786 pts.; Lord Sherborne, 752 pts.; W. R. Partridge (23), 738 pts.; Miss H. Baylis, 697 pts.; W. O. Garbutt (25). 681 pts.

Section 3.—Rhode Island Red.—F. W. Clifford, 732 pts.; Miss H. Reed, 664 pts.; Miss M. Lawrence, 625 pts.; A. Daunton (44), 609 pts. ;A. Daunton (32), 608 pts.; J. N. Horne, 545 pts.

Section 4.—A.O.V.—Light Breed.—G. B. Marshall (B.L.), 672 pts.; H S. Hitch (Ancona), 641 pts.; H. L. Lemon (B. la Bresse), 603 pts.; A. Daunton (Ancona), 598 pts.; M. A. Greenway (B.L.), 494 pts; L. Grist (Ancona), 494 pts.

Section 5.—A.O.V. Heavy Breed.—Major J. G. Dugdale (Breed, L.S.) 855 pts.: Mrs. E. Weinholt (Aus. Orp.), 676 pts.; J. L. Brown (L.S.), 658 pts · Miss M. Lawrence (Barnevelder), 635 pts.; F. R. Welch (L.S.), 592 pts.; Miss H. Reed (L.S.), 579 pts.

Section 6.—Ducks.—Mrs. A. Japp (W.R.), Test Score, 167; Major J. G. Dugdale (K.C.), 148; Mrs. E. Weinholt (K.C.), 146; W. R. Partridge (8). (W.R.), 140: W. R. Partridge (10) (W.R.), 137; Sherborne Park P.F. (W.R.), 131.

Pen Duck Section (4 ducks to the pen). Report for the seventh month ended May 2nd, 1924.—Major J. G. Dugdale (K.C.) test score, 533; Bradley Agricultural School (K.C.), 505; G. H. H. Simmons (K.C.), 422; D. C. Herbert (K.C.), 424; W. R. Partridge (W.R.), 406; Sherborne Park Poultry Farm (W.R.), 390.

(Signed) R. A. and A. M. JOHNSON.
The Cotswold Poultry Farm, Chalford.

H. S. WRIGHT, Hon. Secretary.

Answers to Queries.

By the EDITOR.

DUCKS.

Rev. Seymour Shaw, Warcop Vicarage, Westmoreland (President of the Utility Duck Club), will answer all queries relating to Ducks. In cases of extreme urgency answer would be direct, otherwise they will appear in these columns.

POST-MORTEMS.

"BODIES" for post-mortem examination should be sent to Capt. Leeney, M.R.C.V.S., 83, St. Aubyns, Brighton.

Bodies should be packed and sent by post immediately after death, marked for immediate delivery. The fee is 5s. for a reply by post. The name and address of the sender should be distinctly marked on the package. Advice of dispatch and fee should be sent under separate cover to Capt. Leeney.

Readers are particularly desired to observe the above rules when sending birds for post-mortem examination, and also as to writing their name and address distinctly on the package.

REPLIES BY POST.

Replies by post (Not Post-Mortems) can only be sent to non-members of the S.P.B.A. on payment of a fee of 2s. 6d. per letter, these are answered by the Editor, and relate to every phase of poultry-keeping except post-mortem examinations. Members of the S.P.B.A. are entitled to a reply by post by the Editor by virtue of their membership (NOT from Capt. Leeney).

ALL questions should be addressed to the Editor. Capt. Leeney does not reply to questions either by post or through these columns, except in relation to Post-Mortem Examinations.

C. P. C. (Market Harborough). Under the circumstances I do not think that you can hope to make a great deal of profit from fattening poultry, as you have apparently no experience. A cramming machine would probably cost you between four and five pounds. It would be rather too late for you to start now, as you would miss the best of the season when prices are high. So much would depend as to whether you are able to procure stock of the quality and age necessary for your purpose. It is no good fattening hens. You might find what you want on the subject in C. A. Flatt's "Poultry Keeping." There is a chapter there devoted to table poultry. The publishers are Methuen.

W. L. T. L. (St. Helens Down). A good mash for fattening cockerels and ducklings would be: 2 lbs. middlings, 1 each Sussex ground oats and barley meal, and half part meat meal. If you have any skim milk omit the meat meal and mix the mash with this, allowing it first to go sour. Wet mash is superior to dry for fattening. Some of our readers report excellent results by feeding ducks on dry mash.

J. S. (Brisbane). You say that you have 30 two-year-old hens and 100 May and June, 1923, White Leghorns. That up to May of this year they were getting one ounce of wheat night and morning and wet mash, and that the highest egg yield you had on this feeding was 696 for the week ending 12th April. Well, that is a very satisfactory result. On May 15th you turned them on to the Wellingham Pen C mash, fed it in hoppers dry, and then gave one ounce of kibbled maize night and morning. The first week the result of this mash was 685, then there was a drop to 646, then to 602, and finally to 524, while yesterday you only had 59 eggs. We must allow something for a seasonal decline, but the real cause of the trouble is the drastic change in the feeding. In the first place I have repeatedly said that Pen C mash, although it has given wonderful results, is purely experimental, and I must confess myself puzzled that you should have turned from a mash which has given you such excellent results, to one which you knew was experimental. The probability is that the decline is due, not so much to the constituents of the Pen C mash as to the drastic differences in the two formulas. If I were feeding a mash with moderately good results, and made a drastic change to what I considered to be a better formula, the first result would probably be a considerable drop in egg production. When the birds had become accustomed to the new formula the results would be better than on the old one. Now such a radical change as you made resulted in a decline in egg production because the birds' digestive system had to accustom itself to the new feed. This, of course, alarmed you, and having read my reply to a correspondent on May 7th you thought it applied to your own case—which it did not—and again made a change in the formula, thus further upsetting the birds. Your birds were not on the light side; you jumped to that conclusion because of the decrease in the number of eggs, and it was a wrong conclusion. Your best plan will now be to persevere with your present mash. Any further change will only upset the birds. You must not expect any increase in egg production, as the decline is partly seasonal, and naturally as the season advances production will be still less.

J. W. N. (Brockenhurst). I should consider the April, 1923, pullet which only weighed 3¼ lbs. now as very much on the small side. I would not care to breed from a White Leghorn which weighed less than 4 lbs.

C. H. W. (Carlisle). If your chicks are on free range it would be quite unnecessary to add fish meal to the mash which you are now giving. Under the circumstances, as they are well advanced, and you do not wish to push them, the best thing for you to do would be to reduce the milk to one part now and continue that until the end of August. You could then begin fish meal in September. No, I do not consider Black Bresse chicks are more delicate than Wyandottes. At least, I have never found them so. The fact that you have one or two "hunched up" may be due to a chill—that is the most probable cause. In that event, I would give them 40 grains of citrate of iron and quinine to the gallon of drinking water.

A. M. F. (Pinner). The sample "B" of broad bran is very dear at 12s. cwt., and it is only ordinary bran which has been passed through the rollers twice and simply flattened out. The middlings at 12s. are a good average sample, but the price is too high; they are not worth the money. The ground oats at 17s. 6d. are a good sample, but not "Sussex" ground. The chick feed for chicks from six weeks old is far too high in price, and there is nothing to recommend it as to quality. You would do better by buying some small wheat, kibbled maize and whole groats. The grain mixture is just fair. The middlings "A" at 13s. are very good, but the price rather high. The ground oats "A" are a good sample, better than "B." The chick feed "A" from six weeks is much the better of the two samples. It does not contain so much indigestible matter.

"Fray Houses" (St. Annes-on-Sea). You must look upon the decline in the egg yield as being, to a large extent, seasonal, and you will not be able to help it by feeding. It is simply now a case of the food being diverted from egg production to development of new feathers. Your feeding appears to be quite correct, and to attempt to further increase the maize meal or Sussex ground oats would not help in the least. If you do that it will result in your getting the birds over-fat. I cannot tell you what is the matter with the hen which waddles like an Indian Runner duck. I should hardly think it was rheumatism. Most probably it is a case of liver trouble, more particularly as you say that she is very yellow about the face and head. I should not think that she was worth much. Give her plenty of fresh green food, particularly the leaves of dandelions, and small regular doses of Epsom salts; make her, as far as possible, scratch for all her food, and take care not to over-feed her.

POST-MORTEMS.

H. J. S. (Edenbridge). The two chicks were both affected with coccidiosis. In one the caeca were much inflamed and presented a very typical case, the other showed very slight visible lesions, but the organism was easily demonstrated microscopically. Pneumonia was not found in either subject. We should advise continuing treatment, pushing the catechue to the amount of one teaspoonful to the two gallons of drinking water, and, of course, taking every precaution to prevent spread by sweeping up the litter and burning.

A. S. (Anglesey). The Exchequer Leghorn pullet was recovering from coccidiosis, but being debilitated from that disease fell a victim to chill pneumonia. It is a peculiarity of birds that, although suffering from a mortal disease, they show no particular symptoms until overwhelmed with the toxins which cause their death. We should advise treating the remainder with tonics, such as one dram of sulphate of iron dissolved in one gallon of drinking water, allowing no other water for two weeks.

A. H. L. (Brecon). We have examined the chicken, and repret to report Avian Diphtheria affecting the mouth and internal organs also. We recommend dipping their heads daily in a one per cent. solution of permanganate of potash in water, while holding the mouths open for about 20 seconds. All morbid material that can be reached should be scraped off and burned, and the denuded membranes painted with tincture of iodine. Disinfection should be thorough, and litter swept up and burned daily. It is a most unfortunate start, and we hope by thorough measures you will overcome the infection.

Mrs. I. M. M. (Wickford). We have dissected out the head and with particular regard to the orbits and eyes, and we fail to find the eye parasite (Mansoni), but we do find a catarrhal affection in the air passages extending into the orbits after the manner of what poultry-keepers call "one-eyed" roup. As treatment we recommend immersing the head in a one per cent. solution of permanganate of potash in water, holding the mouth open for about 20 seconds so that the antiseptic may come in contact with the source of the discharge.

H. and S. (Cosham). This bird was the subject of rickets and of digestive organs defective in power. The gizzard muscles instead of being round and full had depressions in them, and there was no power to contract upon the contents, which consisted entirely of grit and one blade of grass. The glandular stomach was puffed and watery, and the body anaemic. The intestines were inflamed. There was no infectious disease. The article in the ration we suspect is the soya bean meal, which we would advise you to delete and give some cooked linseed. Hoping you will succeed in stopping further serious losses.

KEIGHLEY AND DISTRICT BRANCH.

Readers will note that it is the intention of this very progressive branch to hold their first Annual Utility Show on Saturday, November 1st. The schedule is now being prepared, and if any of our members are willing to guarantee classes or Specials will they communicate with the Secretary, Mrs. Wilson, Minorca Farm, Denholme, Bradford.

The Council of the S.P.B.A. have promised a Challenge Cup for the best exhibit shown by a member of the S.P.B.A. There is a member's cup for the most points gained in the show by a member of the show. Further particulars will be found under Notices.

THE MARKETING OF POULTRY.

By A. V. CLARKSON.

This series of articles is started by a market man solely with the object of enabling the smallest or the largest poultry farmer to use the London Markets to his or her benefit, and is started because it is the experience of the writer that these people are lacking in knowledge regarding the question of marketing their poultry.

To qualify these remarks it is necessary to state that many people have splendid table poultry, and do not benefit by it for three reasons:—

1. They market it at the wrong time.
2. They spoil it in the preparation for market.
3. They don't market it at all, but sell to a higgler, who is a middleman between the market and the producer.

Every poultry-keeper is a prospective sender to the poultry market, therefore, immediately a person commences to keep poultry it should be one of their duties to learn the best manner in which to dispose of their produce.

Every kind of poultry, good, bad and indifferent, can be disposed of on the London markets.

London, with its ten millions of people, is the biggest consumer of poultry in England, and what is not actually consumed in London itself is redispatched to the provinces.

Of course, it is quite realised that there are exceptional cases where individual producers are able to do without the London market, but, of course, in proportion there are enormous numbers who cannot, and it is to them these articles are addressed.

It is the opinion of the writer that at the commencement of these articles many readers will want to write for details, but it is believed that their questions will be automatically answered by reference to the tabulated market advice report for the current month in this paper. The following articles will go thoroughly into details regarding the various items which go to make up successful marketing, and the writer really thinks it well worth while for readers to save the whole collection of articles for future guidance, and so save himself the possibility of throwing away needlessly a share of his possible profits, and that at the time of the year, when he sadly needs a little income to help the outgoings, known only too well to the writer, who is a modest poultry farmer as well as a market man, and also a member of the S.P.B.A.

The writer will mention the following facts this once only, because he thinks it will dispel an old tradition in connection with sending consignments to market:—

> For some reason, justified or otherwise, the poultry salesman holds the reputation of being a rascal. Some live up to the reputation, some don't. Find one who doesn't.

Because the poultry salesman gets no satisfaction at all out of returning a sender a bad price. The salesman's income is derived from his commission on the sales. If he returns the sender a bad price at a time when the market is not bad, it is certain that the sender will find another salesman, and salesmen are not in the habit of committing commercial suicide.

Remember that a poultry sender who sends to an unreliable salesman without enquiries is quite as foolish as the woman who sends her few shillings away to some unscrupulous tradesman who promises gold watches and suites of furniture in return.

LONDON MARKET ADVICE, June, 1924.

Class of Produce.	**Size.**	**Method of Marketing.** Always allow plenty of ventilation in packing.	**General Remarks.**
Small Spring Chicken.	Light Breeds under 1¼lbs. not wanted. Heavy Breeds 1¾lbs.	Sell locally. Kill and Clean Pluck. Gut in hot weather.	Poussin Trade now finished. In cases where skilled labour is not available send the birds alive to the salesman, who will kill and clean pluck them for 3d. per bird. This also avoids possibility of birds turning green during transit.
Large Spring Chicken.	3lbs. or over.	Kill and Clean Pluck. Gut in hot weather.	
Old Hens.	The real demand is for hens weighing 4lbs. or over. Smaller stuff does not sell so well.	Send alive.	In cases of Live Stuff never overcrowd. It's illegal and cruel, and on arrival some may be stifled. That's your loss.
Ducks.	The only real demand is for a duckling weighing 4½lbs. or over.	Must be sent Killed and Clean Plucked, but do not gut.	Coloured or Runner Ducks under 4½lbs. not wanted on London markets.
Rabbits.	Suckers not wanted.	Use hanging open crates, supplied by salesman. Must be paunched. Not much Demand.	Real demand in September.

Some Fruit Growing Notes to Help Poultry Keepers.

By F. W. WHEELER, F.R.H.S.

CORDONS AND SUMMER WORK.

Before picking up some of the points of my last article, which I then said would require enlarging upon, I think I will digress this week to another subject as a new line of interest might be struck for any growing fruit trees on the Cordon system, and a few seasonable notes prove helpful to them.

I also think that, judging from correspondence, etc., that my notes are read by some poultry-keepers who grow fruit, not so much as a money-making side line, as for a pleasure or hobby; therefore a word or so about the growing of choice fruit on the Cordon system may prove of general interest, and as summer pruning is an essential work when growing apples or pears in this manner, a few notes must be given before too late.

Let us first briefly explain the method of Cordon trees. This consists of training trees with a single stem (occasionally double), and thus concentrating all the vigour of the trees into a very limited area; this with the very severe spur pruning aids us to obtain larger and better coloured fruit, and just as the bush trees are a more intensive system than the standard, so is the Cordon still more intensive than the bush, for the last-mentioned is practically eight or nine cordons trained on one short stem, or leg.

Cordons will give a paying crop earlier than a bush tree, and, bye-the-bye, I might mention, are particularly suitable for light soils.

Cordons are sometimes trained horizontally, about 18 inches off the ground, in beds on either side of the path; or sometimes vertically in gardens with very limited spaces; or, again, as fillers at the end of rows, where there is not sufficient room for a spreading bush or tree; but they are most successful when planted about 2ft. or 2ft. 6in. apart, and trained on a wall, or in a row in the open; in both cases planted obliquely at an angle of 45 degrees with the ground (where possible sloping towards South). This oblique planting helps to check the flow of the sap to the top of the trees and diverts it to the fruit spurs. It also reduces excessive wood growth, and so further encourages the formation of fruit buds.

When there is excessive wood growth, which sometimes comes as the trees get older and root action is too free, then the ties of the trees are cut, and the slope altered from 45 degrees to 30 degrees. Some growers check this wood growth by taking up and replanting, i.e., a severe form of root pruning.

If the cordons are planted in rows in the open ground, they require a special wire fence with bamboos to train them on, but I cannot to-day enter into the details for constructing this fencing. It is not difficult, and I have grown the cordons in nearly all the ways mentioned; each has its own advantage.

Another very successful and artistic way for a garden is to use them to form arches over grass walks, says two in the bed (2ft. apart) on each side of the path, and as they grow bend over the heads to meet in the centre. They will require canes and poles to train them to at first, but eventually they are self-supporting. I think these are far superior to roses for archways ,as there are not the thorns to catch and tear the clothes, which eventually you generally get when using ramble roses for an arch.

The initial outlay for the Cordon system of fruit trees is naturally heavier, but, to repeat myself, I think they are a great advantage for the limited spaces of so many gardens and very easy to attend to, both for spraying, pruning and general cultivation.

(To be Continued.)

FISH MEAL—A FALSE TRADE DESCRIPTION

PROSECUTION BY MINISTRY OF AGRICULTURE.

At Billericay, on Wednesday, before Mr. T. W. Bacon (in the chair), Albert Edward Garner, of the Mills, Pitsea, was summoned, under the Merchandise Marks Act of 1887 for selling certain goods, on November 19th, 1923, to which a false trade description was applied.

Mr. H. J. Jeffries, who prosecuted on behalf of the Board of Agriculture and Fisheries, said defendant dealt in fertilisers and food-stuffs, and one of his specialities was high-grade fish meal. The firm of Messrs. John Tidey and Co., of Croydon, ordered about two tons of fish meal from Steyne Foods, Ltd., of Steyning. This order was passed on to the defendant to complete. The defendant supplied the meal in forty bags at a cost of £15 per ton. An analysis on defendant's invoice stated that the meal contained 4½ per cent. of oil, 56 per cent. of albuminoids, and under 3 per cent. of salt. A week later a complaint was made, and defendant wrote a letter in which he contended he had supplied the same quality as he did to his other customers, and if they were not satisfied they could return it to him. Complaint was made by Messrs. Tidey, in the interests of their business, to the Ministry, and an official analysed a sample of the meal. This sample showed an excess of oil, the total being 12.29 per cent., and a deficiency in albuminoids of 2.42 per cent. The sample contained 10 per cent. of foreign matter, which included barley husks, rice, and potato peel. Defendant's explanation was that there had been a mistake in loading up the consignment, and that some of the bags contained fish meal of a lower grade than that ordered. Mr. Jeffries explained that fish meal was purchased largely by poultry-keepers, and it was important that this should not contain any vegetable matter, nor should it contain more than 5 per cent. of oil at any time. An excess of oil adversely affected the egg-production of fowls, and caused diarrhoea. The Ministry regarded this as an important prosecution, and asked for costs against the defendant, in addition to the fine which the Bench might think fit to impose.

For the defence, it was stated that it was a case of inadvertence or mistake of fact. They could not account for the presence of the barley or potato peel, and submitted it might possibly have been a mistake committed at the other end.

Defendant and James Henry Griffin, his foreman, gave evidence, the latter stating it was quite likely the bags got mixed. If the wrong did go, it went by mistake while he was absent, attending to some machinery.

After retirement the Bench fined defendant £10 and £5 5s. costs. —(From the "East Anglian Times").

SECOND MIDDLESEX COUNTY LAYING TEST.

The above was held at Hearne House Poultry Farm, Hayes, Middlesex.

REPORT FOR EIGHTH MONTH.

Light Breeds (Single Birds).—1, J. & A. Moore (B. Leg.), 154 pts.; 2, Roebuck & Illingworth (B. Leg.), 147 pts.; 3, J. A. Howarth (W. Leg.), 139 pts.

Heavy Breeds (Single Birds).—7, Mr. and Mrs. E. H. Lade (R.I.R.), 157 pts.; 2, J. Veeger (L.S.), 156 pts.; 3, W. Measures (R.I.R.), 147 pts.

Light Breeds (Pairs).—1, Davey & Son (B. Leg.), 231 pts.; 2, F. C. Tomlinson (W. Leg.), 222 pts.; 3, E. & W .A Franey (W. Leg.), 221 pts.

Heavy Breeds (Pairs).—1, Major G .T. Williams (R.I.R.), 298 pts; 2, A. D. Prince (R.I.R.), 294 pts.; 3, W. Claughton Douglas, (W.W.), 285 pts.

H. Winch leads in Cross Section with 140 eggs.

(Signed) LILIAN SMITH, Manageress.

KEIGHLEY AND DISTRICT BRANCH OF S.P.B.A. LAYING TEST.

Held at Minorca Farm, Denholme, under the management of Mrs. Wilson. The eighth month of Test concluded on June 11th. Results have not been quite so good this month, above 50 per cent. of heavy breeds have been broody, while there has been five cases in the light breeds. Nos. 13 and 21 are in hospital with canker. A two-ounce egg is termed first grade for this month, while under that weight is considered second grade.

Heavy Breeds.—No. 1, H. Downsbrough (W.W.), 161 pts.; 2, H. Rawlinson (W.W.), 159 pts.; H. Nelson (W.W.), 159 pts.; 3, H. Kershaw (W.W.), 156 pts.; 4, J. Ellison (R.I.R.), 143 pts.; 5, S. Lawton (W.W.), 142 pts.; Mrs. Barker (W.W.), 142 pts.; 6, S. Lawton (L.S.), 140 pts.; 7, S. Preston (Buff R.), 139 pts.; 8, J. H. Brayshaw (W.W.), 135 pts.; 9, H. Downsbrough (W.W.), 121 pts.; 10, B. Atkinson (Barred R.), 120 pts.

Others scores are: No. 35 (117), No. 10 (117), No. 3 (116), No. 12 (115), No. 8 (115), No. 63 (113), No. 27 (106), No. 62 (104), No. 29 (97), No. 64 (91); No. 30 (86), No. 28 (71), No. 22 (68), No. 13 (25), No. 57 (5).

Light Breeds.—No. 1, W. Bancroft (Ex.L.), 170 pts.: 2, S. Lawton (W.L.), 160 pts.; H. Kershaw (W.L.), 160 pts.: 3. Capt. W. Owen (W.L.), 152 pts.; 4, S. Preston (W.L.), 151 pts.; 5, S. Lawton (W. L.), 148 pts.; 6, Mrs. H. Wilson (W.L.), 144 pts.; 7, H. Buckley (Blk. L.), 140 pts.; 8, Ed. Smith (Ex.L.), 137 pts.; 9, Mrs. J. R. Thompson (W.L.), 136 pts.; 10, H. Dixon (W.L.), 135 pts.; A. Butterfield (W.L.), 135 pts.

Others scores are: No. 36 (134), No. 9 (133), No. 33 (132), No. 60 (132), No. 18 (131), No. 11 (130), No. 34 (130), No. 15 (129), No. 44 (129), No. 19 (128), No. 31 (128), No. 17 (127), No. 48 (126), No. 53 (107), No. 38 (96), No. 37 (92), No. 14 (76).

EGG-LAYING TEST.

LANCASHIRE POULTRY FEDERATION'S COMPETITION.

The report of the eighth month—May 4th to 31st—in the Lancashire Federation of Utility Poultry Societies' 12 months' egg-laying competition has just been issued by the secretary, Mr. E. Collier. The light breeds are penned at Mr. H. Hayes' farm, Tottington, who reports two deaths during the month. All the other birds are in good health. Seventy birds have laid 20 eggs or over during the 28 days. Bird No. 119 laid 27 eggs; No. 56, 26 eggs; Nos. 6, 25, 55, 97, 100, and 122 have each laid 25 eggs during the month. No. 100 has laid 77 eggs in 84 days.

The heavy breeds are penned at Mr. W. Hamnett's farm, Blackpool, who reports all birds in good health and laying satisfactorily. Broodiness is fairly prevalent, 50 birds of the 135 being affected, three for the second time during the month. Forty birds have laid 20 eggs or over during the 28 days. The leading Red has again laid 27 eggs, bringing her total to 194 in the 224 days of the test. The highest record Wyandottes have 178, 172, 166, 160, 157, and 156 eggs each to their credit respectively, and the second and third Reds 160 and 155. The leading single birds have laid 171, 150, and two 131 each during the test. The average for the 28 days for the heavy breeds is 16 1-3 eggs per bird. Pens that have lost two birds during the test have had their records deleted from the monthly reports; this also applies to birds that have died in the single bird section. The scoring this month is four points for a first grade egg of 2ozs., and three points for a second grade egg of 1¾ozs.

The positions are as follow, the figures showing the eggs and points respectively:—

LARGE BREEDERS' SECTION.

Light Breeds (Three Birds).—1, W. Barron, 355, 1,674; 2, W. Braithwaite, 357, 1,632; 3, R .Rodwell, 334, 1,542; a4, J. Hamer, 317, 1,465; 5, A. Proctor, 315, 1,403; 6, H. Sutton, 304, 1,389.

White Wyandottes (Three Birds).—1, R. Moon and Son (3 b.), 396, 1,958; 2, C. C. Humber, 423, 1,886; 3, R. Rodwell (1 b.), 389, 1,879; a4, T. Gardner (3 b.), 386, 1,792; 5, E. Cam (3 b.), 382, 1,789; 6, W. Barron, 430, 1,763.

A.O.V. Heavy Breed (Three Birds).—1, W. Wearden and Sons (1 b.) (R.I.R.), 425, 2,107; 2, R. Green (R.I.R.), 437, 2,073; 3, T. Braithwaite (2 b) (R.I.R.), 421, 1,853; 4, R. Moon and Son (1 b.) (R.I.R.), 408, 1,850; 5, J. Rainford (1 b.) (R.I.R.), 429, 1,821; 6, H. Sutton (R.I.R.), 365, 1,634.

SMALL BREEDERS' SECTION.

Light Breeds (Single Birds).—1, H. Tattersall, 107, 503; 2, F. and H. Evans, 103, 489; 3, J. Smith, 99,474; 4, W. L. Holding, 89, 408; 5, W. J. Swarbrick, 90, 384; 6, A. H. Brain, 84, 376.

Heavy Breeds (Single Birds).—1, W. Fletcher (W.W.), 171, 788; 2, S. B. Lonsdale (W.W.), 131, 601 ;3, T .R. Grice (b) (W.W.), 131, 589; 4, A. Spencer (W.W.), 150, 557; 5, J. W. Pearson (W.W.), 109, 500; 6, A. H. Brain (b) (W.W.), 97, 461.

b Broody; m moulting; a Bury members competing for their society's challenge cup.

MIRFIELD AND DISTRICT POULTRY-KEEPER'S ASSOCIATION.

EIGHTH MONTHLY REPORT.

The 8th of June closed the 8th Monthly period of the Laying Test, held at Roberttown Poultry Farm. There has been one death during the month—Pullet No. 4. The health of the flock is excellent. There is a slight decrease in egg production, caused mainly through broodiness.

LIGHT SECTION (Single Bird).

1, Ledgard and Brown (W.L.), 144; 2, J. A. Thackrah (W.L.), 109; 3, Sykes Bros. (W.L.), 107; 4, T. Ashcroft (W.L.), 106; 5, A. Blackburn (W.L.), 104*; 6, P. Saxton (W.L.), 102.

HEAVY SECTION (Single Bird.)

1, C. Whiteley (W.W.), 124; 2, A. Blackburn (W.W.), 111; 3, J. Raistrick (R.I.R.), 107; 4, G. Brook (R.I.R.), 106; 5, G. Martin (R.I.R.), 104; 6, A. Blackburn (W.W.), 100*.

PEN SECTION—LIGHT (3 Birds).

1, N. Firth (W.L.), 326; 2, Ledgard and Brown (Blk. L.), 309*; 3, J. W. Brown (W.L.), 243.

PEN SECTION—HEAVY (3 Birds).

1, W. Horsley (B.R.), 270*; 2, T. E. Burnett (L.S.), 258; 3, P. Furness (R.I.R.), 200.

* Winners of Monthly Ribbons.

P. FURNESS, Secretary.

CORRECTION.

VACCINES AND SERUMS.

V. S. V. asks us to correct two errors which occurred in his letter, published in issue of 11th inst., under the title of "Vaccines and Serums." Instead of Institute Miriems, it should read **Mérieux,** and instead of Monsieur Mincing, read **Monséur Mérieux.**

GREAT OPEN UTILITY POULTRY SHOW.

The Keighley and District Branch of the S.P.B.A. will hold their First Annual Poultry Show on Saturday, November 1st, 1924.

Judges: Richard Rodwell Esq., Nelson, Lancashire; E. Whittaker, Esq., Mytholmroyd, Yorkshire.

The schedule is now being prepared.

Will any persons willing to guarantee Classes or give Specials, kindly communicate with the Secretary, Mrs. Wilson, Minorca Farm, Denholme, Bradford.

SPECIALS PROMISED.

S.P.B.A. Challenge Cup for best exhibit shown by a member of the S.P.B.A.

Members' Cup for most points gained in the Show by a member of the Keighley and District Branch of the S.P.B.A.

Silver and Enamel Medal from White Wyandotte Club, for best Utility White Wyandotte Pullet, the property of a Club Member, or of one willing to join on winning.

Two Silver Medals, presented by Quaker Oats, Ltd., for best Male and Female respectively in the Show.

Exchequer Leghorn Cockerel, value £2 2s., from Robert Miller, Esq., for best Exchequer Leghorn, exhibited by a member of the E.L.C.

Several other Specials of Poultry Foods, etc., from all leading manufacturers.

ANSWER TO DUCK QUERY.

" Farmer." If you do not wish your Aylesbury ducks to lay until the following February there should be no need to hatch until June or even July. In any case, even if Aylesburies are hatched quite early—say March or April—it is by no means easy to persuade them to lay till after Christmas. You should not use a drake that is not well matured—certainly less than nine months old. For breeding table ducklings it is often considered best to use a Pekin drake to mate to Aylesbury ducks. Anyway, for good and quick growth of progeny, the drake should be unrelated to the ducks.

SEYMOUR SHAW.

Scientific Poultry Breeders' Association.

APPLICANTS FOR MEMBERSHIP.

Adam, W. G., " The Old House," Loughton, Essex.
Porter, J. B., 4, Percy Street, Fleetwood, Lancs.
Byrne, Miss E., 52, Moyne Road, Dublin.
Martin, G. H., " Alpha," Rayleigh, Essex.
Green, Wm. H., Aintree Village, Aintree, Liverpool.
Pointing, Mrs. A., 62, Cranberry Lane, Darwen, Lancs.
Martin, Wm., 13, Woodlands Cottages, Bramdean, Alresford, Hants.
Taylor, Geo. Hurst, Tallington, Stamford.
Green, Miss E., Booth Hall, Knutsford, Cheshire.
Daykin, Geo., 73, Aldwick Lane, Toll Bar, Bentley, Doncaster, Yorks.
Swepstone, H. E., Harlinge Farm, Mark Cross, Tunbridge Wells.
Morris, Mrs. J. G., Blewburton Hall, Aston Tirrold, Berks.
Morrell, Messrs. Phillip and Co., Home Farm, Garsington, Oxford.
Llyod, G., Hawk Hill, Chaldon, Caterham, Surrey.
Brickenden, Lt.-Com. F. G., Beechwood P. Farm, Gorey, Co. Wexford, Ireland.
Robinson, A. L., 384, Dickenson Road, Longsight, Manchester.
Phillips, E. W. H., " Heron Dene," Ballasalla, Isle-of-Man.
Heley, Mrs. E. Freestone, Toll Gate House, Ascott, Wing, Leighton Buzzard, Beds.
Hope, Mrs., Kinnahaird Dairy, Strathpeffer, Ross-shire.
Jacoby, Miss M., Battle Abbey, Sussex.
Iles, Raymond, Green Farm, Norton, Suffolk.
Lewis, A., The Hut, Crapstone, Yelverton, S. Devon.
Cordery, Mrs. W., Itchen Abbas Manor, Winchester, Hants.
Trendell, H., Clear Springs Poultry Farm, Lightwater, Camberley, Surrey.

Market Report.

MINISTRY OF AGRICULTURE RETURNS, WEEK ENDING, FRIDAY, JUNE 20th, 1924.

GRAIN AND FEEDING STUFFS.—Trade for home-grown cereals is now of very small dimensions, although fair quantities of white oats appear to be available. Imported wheat has risen sharply, owing to the recent U.S.A. official report on crop conditions and the consequent rise in quotations in America. No. 1 Manitoba now averages 11s. 10d. per cwt., a rise of 7d. on the week. Imported grinding barley is in firm demand, prices having a hardening tendency, but oats are in only moderate request and are inclined to fall. With increased arrivals of Argentine new crop maize, prices have given way; 32s. per 480 lbs. (7s. 6d. per cwt.) ex ship is quoted in London for maize to arrive, and spot quotations now average 9s. 3d. per cwt. as compared with 10s. 1d. last week and 10s. 6d. a month ago.

Bran is again slightly cheaper, but middlings attract a fair volume of business and show no change in price. Meals are quiet, with maize meal and other maize products again cheaper in sympathy with lower maize prices; maize meal now averages £10 10s.; Hull, £9 10s.; London, £8 12s. Maize Gluten Feed: for oilcakes is quiet at about late rates.

MILLERS' OFFALS.—Bran (British): Bristol, £7 2s.; Hull, £5 12s.; Liverpool, £6 5s.; London, £6 2s. Broad Bran: Hull, £6 12s.; London, £7 5s. Middlings: Fine (Imported): London, £9 7s.; Coarse (British): Bristol, £9 5s.; Hull, £8 15s.; Liverpool, £8 5s.; London, £8 12s. Pollards (Imported): Bristol, £8 2s.; Hull, £7; Liverpool, £7. Rice Bran: Bristol, £7 12s.; Liverpool, £7 15s. MEAL.—Barley Meal: Bristol, £10 15s.; Hull, £10 3s.; London, £10 10s. Maize Meal: Bristol, £11 10s.; Hull, £10 5s.; Liverpool, £9 15s.; London, £11. Maize Germ Meal: Bristol, £10 10s.; Hull, £9 10s.; London, £8 12s. Maize Gluten Feed: Bristol, £10 10s.; London, £8 15s.

EGGS AND DEAD POULTRY.

The best grades of eggs are in somewhat light supply, and prices have an upward tendency. Russian eggs are on offer at Bristol and London, making 9s. to 9s. 3d. per 120. Poultry meets a steady trade at about late rates, except for ducks, which are cheaper.

Week-end Prices—Eggs (per 120): British: 14s. 6d., 13s. 9d.; Irish: 14s., 13s. 3d.; Danish: 16s. 9d., 14s.; Dutch: 16s. 9d., 14s. 6d.; Styrian: 12s., 11s. 6d.; Belgian: 14s. 6d., 13s. 9d.; Italian: 14s., 13s. 6d.; Lithuanian: 12s., 10s.; Russian: 9s. 3d., 8s. 6d.

Dead Poultry (per lb.): Fowls—Surrey, 2s. 7d., 2s. 2d.; Irish, 1s. 10d., 1s. 8d.; Others, 2s., 1s. 8d. Ducks, 1s. 9d., 1s. 6d. Geese, 1s. 4d., 1s. 2d.

EGGS.

Per Doz.—Ashford: First, 1s. 8d.; Second, 1s. 6d. Birmingham: First, 1s. 3½d. Bridgwater: First, 1s. 3½d. Carlisle: First, 1s. 4d. Chelmsford: First, 1s. 11½d.; Second, 1s. 9d. Denbigh: First, 1s. 4d.; Second, 1s. 3d. Derby: First, 1s. 4½d. Dorchester: First, 1s. 5½d. Exeter: First, 1s. 4d. Hereford: First, 1s. 2d. Hull: First, 1s. 4d. Ipswich: First, 1s. 6d.; Second, 1s. 3d. King's Lynn: First, 1s. 3d.; Second, 1s. 1d. Lincoln: First, 1s. 3d. Llandilo: First, 1s. 2d.; Second, 1s. 1d. Newport (Mon.): First, 1s. 6d.; Second, 1s. 4d. Norwich: First, 1s. 4d. Penzance: First, 1s. 2d.; Second, 1s. 1d. Salisbury: First, 1s. 6d.; Second, 1s. 4½d. Shrewsbury: First, 1s. 3d.; Second, 1s. 2d. Skipton: First, 1s. 1d. Truro: First, 1s. 3d.; Second, 1s. 2d. York: First, 1s. 4d.

FOWLS.

Per lb.—Birmingham: First, 1s. 8d.; Second, 10d. Derby: First, *6s. 0d.; Second, *3s. 6d. Exeter: First, 1s. 9d. Hereford: First, 1s. 9d.; Second, 1s. 8d. Ipswich: First, 1s. 10d.; Second, 1s. 8d. Lincoln: First, *5s. 0d.; Second, *3s. 6d. Llandilo: First, 2s. 3d.; Second, 1s. 10d. Newport (Mon.): First, 1s. 10d.; Second, 1s. 7d. Truro: First, 1s. 4d. York: First, *5s. 6d.; Second, *4s. 6d.

DUCKS.

Per lb.—Birmingham: First, 1s. 10d.; Second, 1s. 6d. Exeter: First, 1s. 8d. Hereford: First, 1s. 6d. Llandilo: First, 2s. 4d.; Second, 2s. 0d.

* Per Head.

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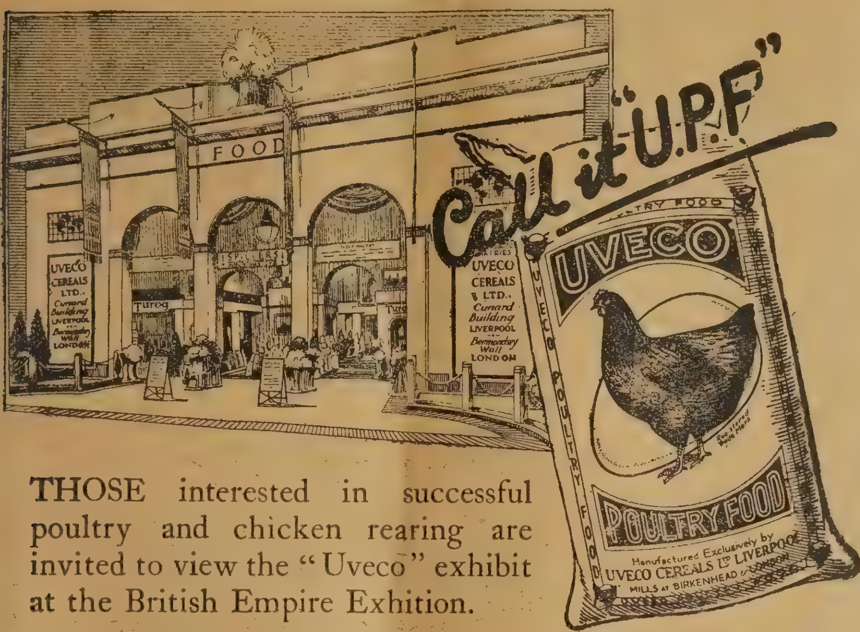
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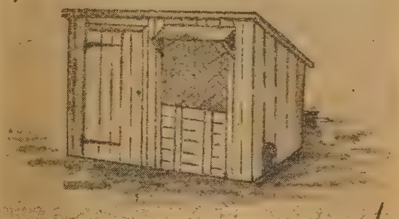

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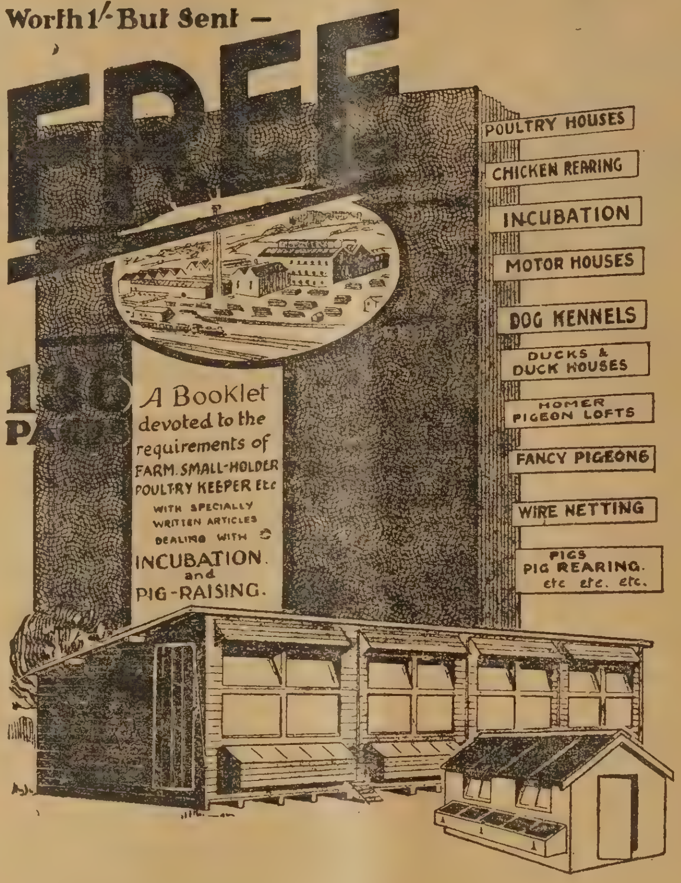
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—— Rd., Thornton Heath, 10/6/24.—You will be pleased to hear that the Leghorn chicks received on May 9 are doing splendidly, and I am delighted with them, and I now enclose a further order.—M.S.B.

Groebridge, near Edinburgh, 6/6/24.—I shall be glad if you will forward me one and a half dozen chicks as soon as possible. The Rhode Island Red chicks I purchased from you last season have done exceptionally well.—L.K.

—— Park, Arundel, 6/6/24.—All the chicks arrived in excellent condition, looking the picture of health, and I am well pleased with their condition and your careful execution of my order. I am returning the boxes and will not hesitate to order from you when requiring further stock.—F.D.

—— Street, Islington, 6/6/24.—Having purchased chicks from several pedigree laying strains in different parts of the country I decided to send you an order for some of your Ideal White Leghorns this season, and obtained a batch from you last February, and can honestly say I have never had birds to equal yours for growth and the condition of the youngsters at the time of writing is most gratifying to you as the breeders and to the writer as being responsible for their rearing. —A.A.C.

—— House, Brentwood, June 10, '24.—I am pleased to advise you that the whole of the chickens you supplied three weeks ago are going on well. These arrived in good condition and by the train arranged, and I am more than pleased with my purchase, and as I feel sure they will turn out well, just as the others I have had from you in previous years, I am naturally feeling a very satisfied poultry-keeper.—H.A.W.

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13 „ „ „ 8

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Advertisements must be distinctly marked with the Heading under which they are to appear.

Advertisements must be written on a separate sheet of paper, and on one side of the paper only.

Name and Address to be counted. In the case of a Box Number being used, the words, "Box," "Eggs," 94, Farncombe Street, London, S.E.16, to be counted as eight words, i.e., making a total extra charge of 1s. 8d. (1s. for Box; 8d. for address) per insertion, with series reduction as shown above under "Serial Rates."

Advertisements must reach this office FIRST POST FRIDAYS for insertion in the following Wednesday's issue. Those received after this time will be inserted in the next issue.

PLEASE WRITE CLEARLY, AND TO AVOID MISPRINTING OF STRAINS, NAMES AND ADDRESSES, THESE SHOULD BE WRITTEN IN PRINTED CHARACTERS.

Displayed Advertisements.

Ordinary Page, £8 15s. 6d.; Half Page, £4 7s. 9d.; Quarter Page, £2 5s. 0d.; One Column, £2 18s. 6d.; Half Column, £1 9s. 3d.; Quarter Column, 14s. 6d. One inch, 6s. 6d. Special Inside Pages, 25 per cent. on above rates. Cover and other Special Position by arrangements. Discounts for Series. Full Scale of Advertising Rates on application.

Advertisements, addressed to Mr. S. H. BURLES, "EGGS," 94, FARNCOMBE STREET, LONDON, S.E.16, MUST REACH US BY FIRST POST FRIDAY MORNINGS, for insertion in following issue. Those received later will be inserted in the next issue.

A DEPOSIT SYSTEM has been adopted for advertisements, and Advertisers are asked to make full use of same. When remitting direct to the Editor on deposit the full amount of purchase money should be sent and six penny stamps extra to cover cost of acknowledgment of same.

PULLETS.

FOR SALE.

30 White Wyandotte Pullets, Feb., 1924, hatched, bred from trap-nested stock, 6s. 6d. each, or £9 10s. the lot; carriage paid.—W. J. Lawry, Bissom Farm, Penryn, Cornwall.

1924. PULLETS. 1924.

Selected, large, big-framed Pedigree Pullets, from egg record parents, January and February, 1924, hatched. Light Sussex (Russel-Cook), Rhode Islands (Golden-Russel), White Wyandottes (Cam-Barron), all guaranteed healthy; 8s. 6d. each, £5 dozen; carriage paid.—
G. W. BELL, N.U.P.S.,
"Lord of the Manor," St. Lawrence, Ramsgate.

PURE-BRED BARNEVELDERS

Pullets, February, 1924, Imported Schimmel's. Cockerels, February, March, 1924, Middleman's direct.—Mrs. Norman Parish, Member British Barnevelder Club, M.S.P.B.A., Avona, Bramhall, Cheshire.

Quick
healthy
growth

—that's what your chicks will have if you feed them the Ful-O-Pep way. Ful-O-Pep brings them to full, strong maturity three weeks earlier than any other feed.

It is not a stimulant, neither is there any tendency to "weediness" among the birds. Healthy nourishment—every beakful a complete balanced ration—is the keynote of Ful-O-Pep Growing Mash.

It never sours—thus two or three days' supply may be tipped direct from bag to hopper. Those "five feeds a day" are gone! One feed daily of mixed grain, thrown into the litter—and Ful-O-Pep Growing Mash. After that, profit.

Save time and loss by reading the chapter on chick-raising in the Ful-O-Pep Monthly Guide, sent FREE and postage paid. The Guide has illustration and full details of the All-age Self-feeder.

FUL-O-PEP GROWING MASH

NO MIXING : NO HEATING WATER : NO TROUBLE

Sold only in sealed bags. When buying Ful-O-Pep always look for our trade marks: the word Ful-O-Pep and the two fighting cocks on the bag.

12

Guaranteed by QUAKER OATS LTD., 11, Finsbury Sq. E.C.2

PULLETS.

FOR SALE.

Nearly 200 early March-hatched White Leghorn Pullets at 7s. 6d. each. A1 laying strain, from over 500 trap-nested parents; flock average 210.—Smith and Son, Utility Poultry Experts, 112, Gillott Road, Birmingham.

1924 PULLETS.

BLACK LEGHORN AND LIGHT SUSSEX.

A limited number of Pedigreed Pullets, bred for size, type, stamina, and normal egg production—i.e., from trap-nested hens laying 174 to 241 eggs (Black Leghorn) and 171 to 210 eggs (Light Sussex). Hatched January, February, March, and April, free range, price according to age and pedigree from 8s. 6d. to 20s., carriage paid. Also Stock Cockerels. — Mrs. Goldwell, S.P.B.A., B.B.L.C., Spring Grove, Milverton, Somerset.

1924 RHODE ISLAND RED PULLETS.

Major Robert Lethbridge, Broomhill, Tiverton, offers sound well-grown 3, 4 months old pullets, individually marked to special hens or to S.P.B.A. registered pens, also few early cockerels from 285, 280, 242 egg dams. All breeding stock trap-nested; records 200 to 285. Details on request.

COMMANDER TIPPET,

Goring Heath Pedigree Poultry Farm, Oxon, offers 150 1923 hatched, trap-nested **WHITE LEGHORN PULLETS,** all L2, of grand stamina, which must be cleared before August. They will make **VERY VALUABLE BREEDERS** for next season. 9s. 6d. each, £5 per doz. Offers invited for quantities.

1924

LIGHT SUSSEX PULLETS.

January, February, March, from own Franklynn Strain hens, mated with cockerels; dam's records 315, 240, 233, 220, 180-200, and L2. Three months, 9s.; four months, 12s.; five months, 15s.; carriage paid on six.—Spencer Jones, M.S.P.B.A., Combe Poultry Farm, Little Waltham, Chelmsford.

CAPTAIN STRONG, R.N.

1924. EXHIBITION PULLETS. 1924.

White Wyandottes, Rhode Island Red, Light Sussex, White Leghorns of the leading strains, perfect in type and colour; very hardy, raised on free range, 660 above sea-level; 8s. to 15s.; Cockerels, £1 1s. Vacancy for Pupil. — Hillerton Poultry Farm, Bow, Devon.

W. CRABTREE

can supply immediately 1922 W. Leghorns and W. Wyandottes at 5s. each; 1923 Pullets at 6s., 10s., and 15s. each; and six months old pullets for August to October delivery at 15s., 20s., and 30s. each; 2s. 6d. per bird deposit with order, all carriage paid and crates free. I have seven pens (56 birds) in the first four positions in the principal laying trials. — Twiston, Near Clitheroe, Lancashire.

PHILIP CLAPHAM.

My Wyandottes have stood fourth, third and second this winter at Harper-Adams. Second Grade Eggs conspicuous by their absence. Gloucester Test, Single Pen, 154 First Grade Eggs in seven winter months.—Sherriffs Farm, Lyonshall, Herefordshire.

PULLETS.

FOR SALE.

Black Minorca Pullets, 1924 hatched, 8s. 6d., 12s. 6d., 15s. 6d. each. Over 30 awards in open laying trials, 2 gold medals. Also R.I.Rs.—P. Turnill, Market Deeping.

Pullets, 1924. R.I.R., March 1st, 9s.; Mid-March, 8s. 6d. Few good first cross, from pedigree parents, March, 7s. 6d. Carriage paid on six. Particulars — W. Bernard Payne, S.P.B.A., The Dales, Syston, Leicestershire.

Six Black Bresse Pullets, February, 1924; 15s. each. Carriage paid. — Miss Simson, 85, Beaconsfield Villas Brighton.

Wanted, 10 Wyandotte or Rhode Island Pullets, three months old, in Exchange for Pedigree Show Wire-Haired Fox Terrier, Bitch, three months old, Wyche-of-Notts strain.—Priestley, Paxton Hill, St. Neots.

QUALITY TELLS EVERY TIME.
Ten (only), January, 1924, W. W. Pullets left (commenced laying); 15s. each. Twenty February, 1924 ditto; 12s. each. These are the choice stuff seldom met with. Also few 1923 W.W.; make choice breeders next season; 6s. 6d. to 7s. 6d. Twenty ditto; good culls; 5s. 6d.—Martin Harvey. Finchampstead. 'Phone: Eversley 34.

MISS HASLER, S.P.B.A.,

FRINTON-ON-SEA,

offers healthy, well-grown Feb. Hatched R.I.R. Pullets from her trap-nested stock. Dam's records 200-240; sire's dam's 240-299. Also early hatched Cockerels for Stock, very cheap, if purchased now; records 237-260. Price on application.

PULLETS, COCKERELS, 1924.

UTILITY AND EXHIBITION.

Pullets, 3 months, 9s.; 4 months, 12s.; Cockerels, from 12s. White Wyandottes (Cam-Birket Barron), Light Sussex (Crawshay-Grant); reared on free range. 1923 Pullets, 6s. each.

C. C. SYKES,
BASHURST, near HORSHAM.
MEMBER P.C., S.P.B.A., N.U.P.S., SUSSEX P.C.

1924 PULLETS.

WELL-GROWN, THOROUGHLY SOUND, and HEALTHY PULLETS of Splendid SIZE and TYPE, from trap-nested L2 parents, especially selected for TYPE and STAMINA of the following strains:—

WHITE WYANDOTTE
(Gunn-Wharton).
WHITE LEGHORN
(Cam-Barron-Padman).
RHODE ISLAND RED
(Boucher-Golden-Clay).

Prices: Three months, 9s., carriage paid on approval; four months, 11s., carriage paid on approval. 6d. reduction on 50 lots. and further reduction on larger quantities. Also four month Cockerels, from special cockerel pens, at 12s. 6d. each, may be booked now. Full Mating List on application.

R. S. KEEP,
EAST BUDLEIGH,
DEVON.

Forthcoming Events.

OAKLANDS, BOXMOOR, HERTS.

40 mins. from Euston (frequent trains) and 10 minutes' walk from Boxmoor Stn.

TO BE SOLD BY AUCTION by

Messrs. W. BROWN and Co.,

On Saturday, June 28th, 1924

commencing at 2.0 p.m.,

about 500 head of Trap-nested Pedigree Utility Poultry and Ducks, including 1924 PULLETS and many PRIZE-WINNING BIRDS at the principal Utility Shows.

White Wyandottes, Rhode Island Reds, Light Sussex, White and Black Leghorns, White Aylesbury Ducks,

also numerous Poultry appliances, including Poultry Houses, Incubators, Brooders, and a large joiner-built Laying House, 24 ft. by 14 ft. (sectional).

By order or—

Mrs. ATHOL STUART,

who, on medical advice, is reducing the extent of her farm, and who will in future specialise in the breeding of Rhode Island Reds, White and Black Leghorns only.

Catalogues may be had by return post from Mrs. Athol Stuart, or from Messrs. W. Brown and Co., Auctioneers, Hemel Hempstead.

"Shaw Fruit Farm,"

NEAR NEWBURY.

NOTICE OF SALE OF

The Whole of the Valuable Pedigree Stock,

comprising 400 Head of Pure-bred Ducks, White Runners and Indian Runners, Aylesburys and Khaki-Campbells, all the finest strains. About 100 Head of White Wyandottes and Rhode Island Reds, all pure-bred stock, together with the useful Outdoor Effects.

MESSRS. GIDDY & GIDDY have received instructions to Sell by Auction in Lots on the Premises as above on FRIDAY, JULY 11th, 1924. Catalogues from the Auctioneers' Offices, Southgate Street, Winchester. Telephone: Winchester 394.

The Freehold Property "Shaw Eruit Farm" will be sold by Auction in two Lots without Reserve on the preceding day at Newbury. Particulars and Conditions of Sale on application.

BLETCHLEY SHOW.

AUGUST 4, 1924.

Prizes 20/-, 15/-, 5/-. Specials 5/- every Class.

EGGS, POULTRY, RABBITS and PIGEONS.
Schedules now ready from—
HEDLEY J. CLARKE, Bletchley.

FORTHCOMING EVENTS.

ROYAL LANCASHIRE SHOW AT WITHINGTON,

MANCHESTER,

July 31, Aug. 1, 2 & 4.

83 Classes for Fancy Poultry } Birds hatched
29 Classes for Utility Poultry } in 1924.
50 Classes for Pigeons (under N.P.A. Rules).
4 Classes for Eggs.
9 Specialist Judges.

Penning and Feeding by Old Calabar.

ENTRIES CLOSE JULY 2nd.

For Schedules apply (stating Section) to—
R. CHAWNER, Derby House, Preston.
Telegrams: "Deorlancs," Preston.

Castelmer Poultry Farm,

KINGSTON, LEWES.

FIRST ANNUAL SALE

Messrs. J. R. Thornton and Co.

have been favoured with instructions from Major and Mrs. R. C. Everett to Sell by Auction, upon the premises, on

THURSDAY, JULY 3rd, 1924,

at 1:30 o'clock, about

350

HEAD OF FIRST-CLASS UTILITY POULTRY,

bred upon the farm, on the following varieties:—

Exchequer Leghorns, White Wyandottes, Light Sussex, 1923 and 1924 Pullets, also 100 White Leghorn Cockerels.

Catalogues of the Auctioneers,
66, High Street, Lewes.

PULLETS.

FOR SALE.

R. W. Fearn, 24, Oakleys Road, Long Eaton. Exchequer Leghorns (Miller's direct), hatched March, 1923, from 7s. 6d. R.I. Reds (Boucher's), from daughters of Boucher's No. 1 Pen; not been broody yet; 8s. Sussex (Cook's strain), 7s. 6d. All above in full lay, must sell to make room for young stock. For further particulars apply above.

800 Beautiful R.I.R. Pullets, 1924; direct Dr. Crowley, as chicks. Offers Wanted. Small or Large Numbers. Also Cockerels from same. Also 400 same, 1923.—Longley, Redlands House, Ashwell, Herts.

1924 LIGHT SUSSEX PULLETS
(Leigh-Rothschild), January, February and March hatched; 10s., 12s. 6d., 15s. each. All stock trap-nested. — Napper, Elham, Kent.

PULLETS.

FOR SALE.

White Bresse x Light Sussex. March Pullets, from 7s. 6d. each.—Capt. Pritchett, Marden, Kent.

Twelve Pedigree Black Leghorns, Collinson's strain; two months; 25s. Twelve Pedigree White Leghorns, Barron's; two months; 25s.—Kennett, Boxted, Colchester.

Twelve Pedigree Anconas, Wilson's strain, two months, 25s. — Kennett, Boxted, Colchester.

RHODE ISLAND REDS.

PEDIGREE STOCK ONLY.

Few February-March Pullets, all individually marked, from Dr. Baldwin's Registered Pen I.; E. Leslie Pattison's Pens III. and V.; Own Pen I. (Registered). Dam's records 228-270. Prices, 11s. to 14s. 1923 Trap-nested Pullets, from 8s. See advertisement under Cockerels. — Colonel Clark, Bransgore, Hants.

1924 PULLETS.

Having exceeded my requirements, I can offer a number of February-hatched White Leghorn pullets from trap-nested stock (Cook, St. Mary Cray direct), at 12s. and 15s. each, carriage paid. — W. I. Caven, High Park Egg Farm, Cranleigh.

1924 PULLETS.

February hatched Light Sussex Pullets; sound, healthy birds; guaranteed free from disease: 10s. each; carriage paid on six. — Richards, M.S.P.B.A., Hambrook, Emsworth, Hants.

1,000

Highest Class Utility

1924 PULLETS.

Four months old, 12s.; five months, 15s. Carriage paid on approval.

WHITE WYANDOTTES. } Trap-nested.
WHITE LEGHORNS. }

R.I. REDS (S.c.).

LIGHT SUSSEX.

BARNEVELDERS

A speciality. The ideal utility fowl. Reared from the best birds Holland produces, from 15s. All birds reared on free range of 40 acres. 350 feet above the sea. Pupils taken, all branches, Utility and Exhibition. Good accommodation.—Apply, **HEATHLANDS POULTRY FARM,** Ottery St. Mary, Devon. Members of P.C., S.P.B.A., R.I. Red, W.W., and Barnevelder Clubs.

PURE WHITE LEGHORN PULLETS AND BREEDING STOCK FOR SALE.

1924 APRIL AND MAY HATCHED,

For delivery September onwards. Pullets, 12s. 6d., 15s., 17s. 6d., and 21s.

ALL BRED FROM

Tarp-nested Stock with winter records up to 50, October 15th—January 15th. Sire's dam's records over 250.

1923 TRAP-NESTED BIRDS.

Winter records as above, sire's dam's records over 250. In full lay. Price: 7s. 6d. and 10s. 6d. each.

1922 SPECIALLY SELECTED.

Breeding Stock, sired by Cockerels, dam's records over 250. In full lay. Price, 5s. and 7s. 6d. The 1922 and 1923 stock are all laying at rate of 60 per cent., and will make excellent breeding stock. It is essential to book these birds at once to secure. —The Gilmor Egg Farm, Higher Heath, Whitchurch.

COCKS AND COCKERELS.

FOR SALE.

W. Leghorn Cockerels, March hatched, 1924, A. Latham direct, 6s. each.—Smith, M.S.P.B.A., Woodhead Poultry Farm, Lesmahagow, Scotland.

White Wyandotte, 3 months old, Cockerels from trap-nested hens of over 200 eggs; 8s. 6d. each. Also 1923 hens, 6s. 6d. each.—A. Mansell, Kingston Stert, Thame.

Cockerels, two-three months, Light Sussex (Robinson), Buff Rocks (Oscar Brown), Rhode Islands (Kitchen), Black Leghorns (Frank Snowden and Mrs. Nash); make fine stock birds; 5s. to 6s. each.—Barr, Bentley, Suffolk.

DO YOU WANT

Reliable Pedigree Sires? Early hatched White Wyandottes, Leghorns, R.I.R., Buff Rocks, Black Bresse. From 5s., according to age and pedigree.—Brundrett, Ivydene P.F., Southleigh Road, Emsworth, Hants

DR. BALDWIN'S BEST.

White Wyandotte Cockerels, January-February, March hatched, from dams with W.R. of 50 to 70 wonderful large eggs; 10s. 6d. each. Approval.—Brooksbank, Hedon, East Yorks.

RHODE ISLAND REDS.

PEDIGREE STOCK ONLY.

February-March Cockerels, all individually marked, from Dr. Baldwin's Registered Pen I; E. Leslie Pattison's Pen I (Registered and III; Own Pen I (Registered) and II. Dam's records 205-270. Prices, 9s. to 22s. See advertisement under Pullets.—Colonel Clark, Bransgore, Hants.

BOUCHER'S DIRECT.

Rhode Island Red Cockerels; January, February, March hatched, from trap-nested parents; pen headed by cockerel whose dam's winter record of 90 takes some whacking. Early application advised. 10s. 6d. each. Approval.—Brooksbank, Hedon, East Yorks.

INTRODUCING NEW BLOOD.

Limited quantity 1924 Cockerels for Disposal. The following are hardy, vigorous birds reared on a healthy farm, 750 feet above sea level. Bred from pens direct Frank Snowden. Wyandotte Hen, record 256 to 272, sired by son of 304-egg hen, "Yorkshire Peeress,"' January and February, 20s.; March, 15s. Leghorn Hen, records 240 to 254, sired by sons of 275 2½oz. egg hen, and 291-egg hen. "Missouri Princess," January and February, 17s. 6d.; March, 12s. 6d.; others from records 220 upwards; 10s. and 7s. 6d. All on approval. Allan Thomson, Gowanbank Poultry Farm, Avonbridge, Stirlingshire.

TESTED R.I. RED COCKS.

from my 1924 breeding pens, hatched January, 1923, dam's records 291, 285, 280, 242, 224, individually marked, from £1 1s.; in perfect health, and proved stock-getters of vigorous chicks. Also 1924 cockerels, individually marked to S.P.B.A. registered pen high record large egg hens. January, £1 1s.; February, 15s. — Major Robert Lethbridge, Bromhill, Tiverton.

PEDIGREE STOCKGETTERS.

January, February White Wyandottes, Rhode Island Reds, dams 60-70 winter eggs, sire's dams 275. Approval. 12s. 6d. each. C.P. on six.—Allan, Cannon Hall, Pitsmoor, Sheffield.

COCKS AND COCKERELS.

FOR SALE.

Exchequer Leghorn Cockerels, from hens direct Robert Miller; April hatched; 10s. 6d. each. — Wilson, M.S.P.B.A., E.L.C., "Minorca," Denholme, Bradford.

W. Leghorn Cockerels, January hatched (eggs direct Miss Ransford), dam's records, 230-265; strong, vigorous birds; fed milk and Newman's formulas; 9s. 6d., carriage paid. —"Whinfield," Verwood, Dorset.

Barnevelder Cockerels, February hatched 21s. each. Stock Birds from H. Pickford direct.—F. J. Daffarn, M.S.P.B.A., "Oldfield," Eversley Park Road, Winchmore Hill, N.21.

HARDY ULSTER BRED COCKERELS.

Trap-nested dams. Individual record sires. Direct from recognised leaders. Rhodes (Ball-Golden), Wyandottes (Pattison), W. Leghorns (Pattison-Barron), B. Leghorns (Metcalfe), Anconas (Lawson), Sussex (Hunter), White Runner Drakes (Appleyard), Khaki-Campbells (Ashton); 6s. up.—McMillan, M.S.P.B.A., U.D.C., Crossgar, Co. Down.

EGGS AND CHICKS.

FOR SALE.

Exhibition Utility Strain, Morrison, Percival, Grant, Hortin-Jefferson blood direct, principal sire, only time shown, 4th Birmingham. Eggs, 21s., 15s., 10s. 6d. per sitting of 15: if replacement 12 eggs only: Day-Old Chicks, double the price of eggs. Mating list on application. Stock Pullets for sale from 15s., upwards.—W. H. Brady, Glan-y-coed, Penmaenmawr.

HEN WITH 17 R.I.R. CHICKS, 19s.

Six lots; from selected Colly Stock, on grass, mated to direct Measures and Snowden Cockerels; baskets free, f.o.r.—Jackson, Orchard Bungalow, Milton, Weston-super-Mare.

Hen, with 10 pure-bred White Wyandotte chicks, 12s. 6d., carriage paid.—H. Miller, "Lenhurst," Harrietsham, Kent.

SNOWDEN WHITE LEGHORNS.

200 Day-Old Chicks. All guaranteed. What offers?—Barrowmore 17, Great Barrow, Chester.

HARDY NORTHERN BRED.

Chicks from the highest pedigree, egg-producing strains of White Leghorn, Rhode Island Red, Wyandotte, Sussex, Black Leghorn; 9s., doz.; 35s., 50; £3 9s., 100. Special offer of Exchequer Leghorn (Miller's direct, 291 egg strain); 11s., doz.; 43s., 50; £4 5s., 100. Live delivery, carriage paid.—A. J. Watt, The Hatcheries, Haddington, Scotland.

HILL CREST POULTRY FARM.

E. M. Marshall, S.P.B.A., N.U.P.S., Hailsham, Sussex. Sitting Eggs, 6s., all breeds. Chicks double. Unfertiles replaced 10 days. Descriptive Catalogue on application. W. Wyandottes, R.I.R's, Light Sussex, Buff Orpingtons, White Leghorns, Angora and Havana Rabbits.

HENS.

FOR SALE.

A few White Leghorn Hens (Tom Barron); in full lay; excellent records.—Mrs. Burnaby, Rectory, Sampford-Courtenay, N. Devon.

DUCKS AND DRAKES.

FOR SALE.

We have some of the best-bred Fawn and Whites in this country, mated to sons of "Puxley Belle," the winner of European laying contest; Ducklings, 12s. dozen. — Clay, M.S.P.B.A., Poultry Farm, Dodford, Bromsgrove.

Thirteen pure-bred Pedigree Khaki-Campbell Ducks; Longlayer, hatched June 1st, 1923, mated to two Carrington drakes; now laying well; space wanted; 10s. 6d. each; approval; deposit.—Miss P. Mudford, Rockley, Retford, Notts.

Eggs Duck, K.C., Oscar Brown Special pen, mated drake son 1st prize Crystal Palace, Campbell direct. Owing to fine pasture here should be useful English breeders' stock, having fine stamina. Also R.I.R., Boucher best.—Finegan, Moatlands, Navan.

Typical 1923 Khaki-Campbell Ducks; 10s. 6d. each. Four Months' Ducks, 12s. 6d. Reduction ten. — Particulars, Capt. Pritchett, Marden, Kent.

Four Fawn Indian Runner Ducks (Harold Paine's direct) and Fawn Indian Runner Drake (C. H. C. Partridge direct); all splendid birds. Ducks in full lay, £5.—Hancock, Kempsey, Worcestershire.

Seven Buff Orpington Ducks, laying; unrelated Drake, £3; Ducklings, 12s. 6d. dozen. Eggs, 5s. 6d. Reduction quantities. —Wilson, M.S.P.B., "Minorca," Denholme, Bradford.

Breeding Pen of Black Runners (1923 hatched), consisting of drake and four ducks for 48s. 6d. Related to my winners. —A Mansell, Kingston Stert, Thame.

We have 100 Deep-Keeled Aylesbury Ducks; good layers. Ducklings, 14s. doz.; £5 per 100. White Runners and Indian Runners, 10s. dozen; 75s. 100.—F. and T. Lumb, Fairfield, Hebden Bridge.

Khaki-Campbells (Mrs. Campbell Pittefer direct). Ducklings from trap-nest stock, 15s. doz. Customer writes: "Received Ducklings all lively and well; am very satisfied." — C. Robinson, M.S.P.B.A., K.C.D.C., Grateley, Hants.

Breeding Pen of White Runners, including Duck with official record of 264 eggs in 11 months; mated to Drake from 244-egg duck. Moderate price.—Capt. F. S. Pardoe, Bradley Agricultural School, Mitcheldean.

Aylesbury and Khaki-Campbell Ducklings; strong; from 18s. doz.—Mrs. Munday, Mersham, Kent.

Cheap Duck Eggs for Hatching. Khaki-Campbells (Harrison Bell direct), Aylesburys, (large birds, good layers), Fawn and White Runners (crossed with Paine's Drake), all at 5s. per dozen; clears not replaced. — Adams, Dropshort, Sutton Courtney, Berks.

CHARLES HINTON

Offers Eggs from Pedigree Recorded Khaki-Campbells, 6s. 6d. doz.; 10 doz. 45s. Ducklings, 15s. doz. — Northfield, Birmingham.

AYLESBURY DUCK EGGS,

From large healthy stock, on free range and stream; 90 per cent. fertile guaranteed; 6s. per dozen; carriage paid. — Richards, M.S.P.B.A., Hambrook, Emsworth. Hants.

DUCKS AND DRAKES.

FOR SALE.

Mr. R. H. Berney M.A. (Cantab) offers Breeding Pens of W Runners, from 7s. 6d. per bird, and week-old, month-old Ducklings; all related to my pen that has the highest record for eggs in its section in the National Test for the last two months. —West Common, Harpenden.

BREEDING PENS.

FOR SALE.

WHITE LA BRESSE.

Proved Winter Layers. Cockerels bred from imported stock. 14 Hens and Cock, £7. Approval. Now booking 1924 cockerels. —Capt. Pritchett, Marden, Kent.

LIGHT SUSSEX.

Breeding Pens from 7s. 6d. per bird; trap-nested; 1923-1-24.—Berney, West Common, Harpenden.

R.I. REDS.

Breeding Pens, from 7s. 6d. per bird; trap-nested, 1923-24.—Berney, West Common, Harpenden.

W. LEGHORNS.

Breeding Pens, from 7s. 6d. per bird; trap-nested. 1923-24.—Berney, West Common, Harpenden.

ANCONAS.

Breeding Pens from 7s. 6d. per bird; trap-nested, 1923-24.—Berney, West Common, Harpenden.

BEES.

FOR SALE.

BRITISH BEE-KEEPER'S GUIDE.

By T. W. COWAN, F.L.S., Etc.
New Edition (Illustrated) now ready.
PRICE, 2/9. POST FREE.
E. J. LARBY, LTD.,
30, Paternoster Row, E.C.4.

PIGS FOR SALE.

Whiston Herd of Pedigree Middle Whites, 30 awards, 1923; 1st and Reserve, Champion, Yorkshire and N.P.B.A. Boars and Gilts all ages. Outdoor reared. Farmers' prices. —Widdowson and Kay, Whiston Heights, Rotherham.

PIGS FOR PROFIT.

Large Blacks, Middle Whites and Large Whites. Open-Air Bred Pedigree Gilts and Boars, from 1s. per lb. live weight. Illustrated Booklet free.—S. F. Edge's Pig Farms, Ltd. (Dept. D.), Ditchling, Sussex.

RABBITS.

FOR SALE.

The Lady Rachel Byng, High Sandhoe, Hexham. Giant Blue Beverens, White Angoras, Chinchillas, for Sale. Reasonable prices.

Lester Spurgeon, Wistlers Wood. Woldingham, Surrey, breeder, pedigree giant Blue Beverens. Youngsters for Sale.

RABBITS.

FOR SALE.

Chinchillas and Blue Beverens. The two most profitable breeds for fur and food. Breed or exhibition stock always for sale at prices consistent with quality. All are bred on scientific lines, and are closely related to my recent winners at the Crystal Palace, Hailsham, Hayward's Heath, Lewes, Retford, Metropolitan, and many other shows in keenest competition. Colour and texture are two strong features in the "Heaseland's" Stud. If your present stock fails in either of these all important properties, introduce one of my young bucks, or send your does to be mated to one of my winning bucks, particulars of which will be sent on application. — E. Bostock Smith, "Heaselands," Hayward's Heath.

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Sturdy, well-marked Puppies, eight weeks. Bitches, 30s.; Dogs, 42s.; bred from our own Pedigree Guard Dogs. — Velderbresse P.F., Coates Hall, Barnoldswick, W. Yorks.

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TRAP-NEST FRONT.

32s. 6d. dozen, carriage paid. Sample, 3s. —Major Widdicombe, Shiphay Poultry Farm, Torquay.

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170 One-Year-Old Hens, suitable for breeding, 7s. 6d. each; 140 Pullets, February and March hatched, 10s. each; 40 Cockerels, 10s. each. No question of selling surplus, as I am clearing whole stock of W.L. to specialise in R.I.R.'s.

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Government inspected, upwards of two acres Hants-Wilts border; station, five minutes. Good market, Bournemouth, 18 miles; Southampton, 12, or taken at door. Excellent house, two sitting, four bedrooms, kitchen. good offices, bathroom; inside sanitation; gas. Houses, runs, carry 400 birds; beautiful turf; incubator room, three incubators; food store; goat house; sheds. All in good repair. Excellent kitchen garden. Good fruit trees. As going and paying concern; complete with stock. Fullest investigation invited. — Box 368, "Eggs," 94, Farncombe Street, London. S.E.16.

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Trio Guinea Fowls, 30s., Exchange Early Cross Pullets, Black Pekin or Spangled Game Bantam Hens, Cage Birds, or Chinchillas.—Wood, 187, Rooley Moor Road, Rochdale.

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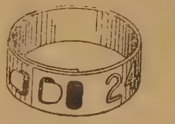

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STONESTILE FARM, CHARING, KENT.

Feb. and March hatched PULLETS for Sale in LIGHT SUSSEX (Mrs. Grant's and Adams' direct), R.I.R. (Moores), White WYANDOTTE (Whartons).

The birds retained for stock purposes are selected from over 3,000 reared.

Moderate Prices.

P. E. WHITE,

The "Eggflo" Farm,
Market Drayton, Salop.

BUFF ROCKS.

BUFF and BLACK LEGHORNS.
RHODE ISLAND REDS.
WHITE WYANDOTTES.

Winner of Gold, Silver and Bronze Medals in Open Laying Competitions.

HATCHING EGGS ARE CHEAPER.

Anconas.
Black Leghorns.
Brown Leghorns.
White Leghorns.
Light Sussex.
Rhode Islands Reds.
White Wyandottes.
Black Minorcas.

per doz. clears replaced. } **5/-** { per fifteen; no replacement.

Kent's Poultry Farm,
TADLEY, BASINGSTOKE.

BOOK NOW.

LIGHT SUSSEX (Harrison-Bell).
COCKERELS
From L2 Birds.

Miss E. M. KIRKBY,

Little Braziers End,
——TRING, HERTS——

WHITE RUNNER DUCKS.

MISS ARGLES,

WHITE WYANDOTTES.

Twice top score, one third in All Ireland Laying Test, in four years; fifth place, "Feathered World" Laying Test, 1922-23.

WHITE LEGHORNS.

7th Place Harper-Adams. 7th Month.
6th place in Section II., Tottenham Laying Test; tied for 1st place in White Leghorn Class.

Pullets and Cockerels now for Sale:
Anstey Poultry Farm, Alton, Hants.

(S.c.) RHODE ISLAND REDS.
BLACK LEGHORNS.
EXCHEQUER LEGHORNS.

J. R. JOY & Co.,

S.P.B.A., N.U.P.S.,

The Sheriffs, Rotherfield, SUSSEX.

E. BOSTOCK SMITH,

Member of S.P.B.A., P.R.S., and N.U.P.S.

Breeder of the Highest Class Pedigree Utility Poultry.

"HEASELANDS," HAYWARD'S HEATH, SUSSEX

'Phone—Haywards Heath, 92.

White Leghorns, Light Sussex,
White Wyandottes, Mendels, Black,
Rhode Island Reds, S.c. Black Leghorns.

WOODBINE POULTRY FARM,

WHITE LEGHORNS
JUNE HATCHED CHICKS
50/- per 100.

Station: Heathfield. CROSS-IN-HAND, SUSSEX. See Advt. Year Book.

Captain H. Oscar Perkins,

M.P.C., M.S.P.B.A., M.N.U.P.S.,

The Poultry Farm, Tendring, Clacton-on-Sea, Essex.

Pedigree Utility White Leghorns (Tom Barron. Large Egg Strain).

Chicks from 8/- per doz.; 60/- per 100.

Or Best Offer.
Carriage Paid.

The PURLEY POULTRY FARM,

PURLEY, SURREY.

Leghorns (White Black or Brown).
W. Wyandottes.
Rhode Island Red.
Rocks (Buff and Barred).
Light Sussex.
Anconas.
Houdan.
Faverolles.
La Bresse.

Aylesbury and Runner Ducks.
'Phone: Purley 1194.

WHITE WYANDOTTES.

Pedigreed, Selected, and Trap-Nested for Ten Years.

Pullets and Cockerels from 15/-; 1922 Hens at 21/-; 1923 Pedigree Cockerels at 52/6.
All Finest Stock.

Miss E. A. BAYNE,

The Chalet, STOCKSFIELD-on-TYNE

BALSHAM MANOR FARM

CAMBRIDGESHIRE.

White Houdans, Gatinaises, Noires du Berry.

White Wyandottes, White Leghorns. Plymouth Rocks.

Sittings from 10/-. Day-Olds Double.

SEND FOR ILLUSTRATED CATALOGUE.

BREEDERS' SPECIALITIES—*Contd.*

ONE OF THESE SPACES COSTS:

13 weeks, 5s. 6d. per insertion.
26 „ 5s. 0d. „ „
52 „ 4s. 6d. „ „

MISS D. OVENDEN,
WHITE WYANDOTTES,
DAY-OLD CHICKS.
All stock trap-nested.
OAKSHIELD POULTRY FARM,
Monks Orchard, CROYDON.

EGGS for INCUBATION.

	100	50	12
Barnevelder	25/-	12/6	3/6
Ex.L'horn, L. Sussex, R.I.R.	25/-	12/6	3/6
DAY-OLD CHICKS.			
Barnevelder	60/-	30/-	8/-
Ex'L'horn, L. Sussex, R.I.R.	60/-	30/-	8/-

All carr. paid. Reduction to callers.
F. G. PAYNTER,
The Lawn, Lampton Road, Hounslow.
Five minutes from Heston-Hounslow Stn.

FERTILE HEN and DUCK EGGS.
All breeds as shown.
4/6 doz., 17/6 50, 32/- 100.
Aylesbury, Buff Orp., and K.-C. Eggs.
6/- doz., 45/-, 100.
Runners (two colours), 4/6 doz., 23/- 100.
All 95 per cent. fertile.
Illustrated list free.

JOHN A. BETTS,
The Manor Poultry Farm (300 Acres),
HAMPSTEAD NORRIS, NEWBURY.
Offers 5,000 Pullets and Cockerels
All ages, from 5/- to 10/- each.
in Sussex, R.I. Reds, Wyandottes, Orpingtons. Langshans, Faverolles, Buff and Barred Rocks, Black, Brown and White Leghorns, Minorcas, Houdans, Campines, Anconas and Game x Orps.
Write stating requirements.

PURE BRED CHICKS.
All breeds as shown.
All ages. From 9/- doz. 35/- 50, 65/- 100.
Mixed Pures 8/- doz.
Pure mother hen and 12 chickens, 20/-.
Aylesbury, Buff Orp. and K.-C., 15/- doz.
Runners (two colours), 12/- doz.

SEE ADVERTISEMENT IN "EGGS," DATED 18th JUNE.
FOR FULL RANGE OF PRICES.
DRIED MILK. GRANULAR CHARCOAL.
FINE ALFALFA MEAL. NEWMAN'S MILK CHICK MASH.
MAIZE GERM MEAL. DRIED YEAST. BROAD ENGLISH BRAN.
MACFARLAN, SHEARER & Co., 'Dept. A,' Greenock.

The WELLINGHAM EXPERIMENT

If your require the Chicken Mash as mentioned in "Eggs," of June 11th, we can supply you at

16/- per cwt.
Bags free.

Carriage forward or delivered within our carting area.

Also Poultry and Pig Meals and Grain of every description.

FRANK SHEARN & CO., LTD.,
MIDSOMER NORTON, SOMERSET.
'Phone: 51.

Rat colonies are coming to you!

Rat Colonies are moving now—bringing the fatal Bacillary White Diarrhoea to *your* chicks. Stop this drain on your profits with "Liverpool Virus."

LIVERPOOL Regd VIRUS
wipes out Mice & Rats

From your Chemist. Ready-baited in tins, or unbaited (liquid) in bottles, for Mice only, 1/6. Stronger, for Rats and Mice, 2/6 and 6/-. By post from Evans Sons, Lescher and Webb, Ltd., Hanover Street, Liverpool, 1/9, 2/10, and 6/6.

New Life for Laying Stock

ARMITAGE'S CHICKEN & POULTRY TONIC

INFUSE new life, vim and vigour into your exhausted laying stock with a week's course of Armitage's Chicken & Poultry Tonic. This potent re-invigorator gives tone to the bird's whole system, stimulates the appetite, and induces the bird to eat copiously, thus rebuilding exhausted stamina and laying in raw materials for yet more eggs. Follow the example of thousands of knowing poultry-keepers, who safeguard themselves against loss of profits due to sickness in the runs, by always keeping handy a bottle of the original

ARMITAGES' Chicken & Poultry TONIC.

1/- HALF-PINT BOTTLE.

Sold by Corn Merchants and Grocers Everywhere.
Trial Bottle, post free, 1s. 6d., from
ARMITAGE BROS., LTD., NOTTINGHAM.

S.P.B.A.

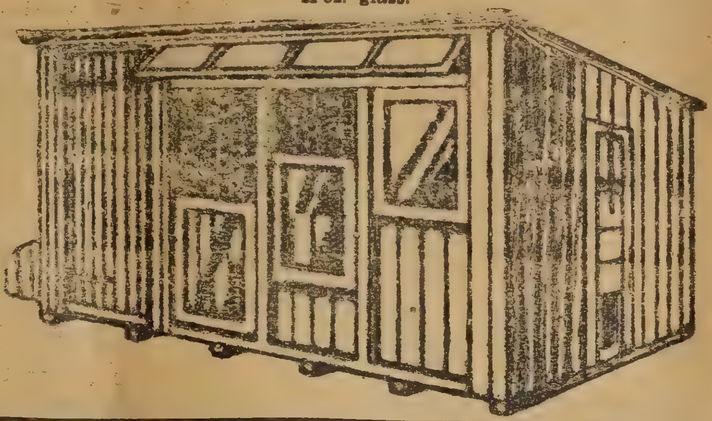
THE S.P.B.A., BADGE.
Gold Letters on Blue Enamel.
1/- post free.
TOM NEWMAN,
The Beeches, Rudgwick,
HORSHAM, SUSSEX.

F YOU REQUIRE A HOUSE WITH THE MAXIMUM AMOUNT OF LIGHT OBTAINABLE THEN YOU MUST BUY A FAVOURITE.

This house is so constructed that you get all the light it is possible to get. The hood is constructed of glass, which enables the light to be thrown right down. The sliding shutters in front are made as large as it is possible to make them; these are also fitted with 21-oz. glass.

he door can be either put in nd or front as illustrated. The rices include nest boxes, roof elted with bitumen felt, creo- oted outside, fitted with drop- ing board and perches, glass hutters and glass hood.

STRONGLY RE- COMMEND THIS IOUSE AS BEING IRST CLASS FOR AYING & BREED- NG PURPOSES.

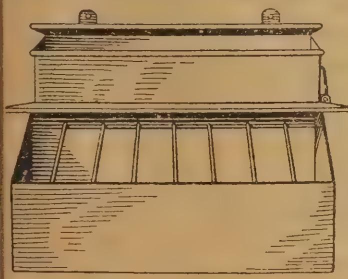


	Long.	Wide.	High.			
No. 1.	6ft.	4ft.	5½ft.	£7	7	6
„ 2.	6ft.	5ft.	5½ft.	£8	10	6
„ 3.	7½ft.	5ft.	5¾ft.	£10	6	0
„ 4.	8ft.	5ft.	6ft.	£10	12	6
„ 5.	9ft.	6ft.	6ft.	£11	7	6
„ 6.	10ft.	6ft.	6ft.	£12	15	6
„ 7	12ft.	6ft.	6ft.	£13	12	6

Carriage paid
and sizes guaranteed.

REDUCTIONS ON 3, 6, 12 OR MORE.

IMPROVED DRY MASH HOPPER.



All made of galvanised iron.

		3	6	12
36in. long,	24/6	70/-	127/-	238/-
24in. „	16/6	46/6	90/-	165/-
12in. „	10/-	26/-	50/-	97/6
8½in. „	6/3	18/-	33/-	60/-

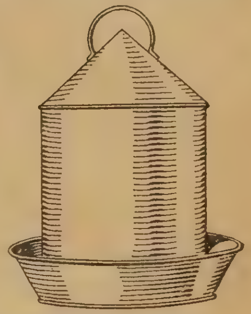
The top opens for replenishing, and the feeding portion is fitted with a hinged lid that can be shut down when not in use. The workmanship is all that can be desired. Carriage paid.

The Sanitary Top Fill Fountain

The interior of this fountain is as high as the sides so filling can be done with ease.

		3	6	12
1 gal. size. ...	7/-	19/6	37/6	72/-
2 „ „ ...	9/-	25/6	49/-	96/-
3 „ „ ...	10/-	28/6	55/6	108/-
4 „ „ ...	13/-	36/-	69/-	132/-

Small size for chicks—approx. one pint. 2/6 each; 3 for 6/-; 6 for 10/6. All carr. paid.



THE FOLLOWING RINGS ARE BEST MADE. I EXPORT LARGE QUANTITIES WITH GREAT SATISFACTION.

SPECIAL REDUCED PRICES OF BEST ENGLISH CELLULOID POULTRY RINGS.

I have had many Testimonials on account of the quality of Rings sent out, as so many cheap rings now on the market are imported and are very flimsy, continually coming off.

Spirals supplied in ten colours: Red, Light Blue, Green, Violet, Dark Blue, Yellow, Pink, Brown, Black, White.

	1000	500	400	300	150	100	50	25	12
1. Day-olds	14/-	7/6	6/6	4/9	2/6	1/9	1/-	7d.	5d.
2. 2 months	20/-	11/-	9/-	7/-	3/8	2/6	1/4	10d.	7d.
3. Half grown	26/-	13/6	10/10	8/7	4/6	3/2	1/10	1/3	9d.
4. Hamburghs, etc.	31/-	16/-	13/6	10/-	6/-	4/3	2/3	1/5	11d.
5. Leghorns, etc.	33/-	16/6	13/9	10/3	6/2	4/4	2/4	1/5	1/-
6. Wyandottes, etc.	34/-	17/6	14/6	11/-	5/9	3/7	2/6	1/7	1/2
7. Ditto Cocks	38/-	19/6	16/6	12/6	6/9	4/9	2/9	1/9	1/3

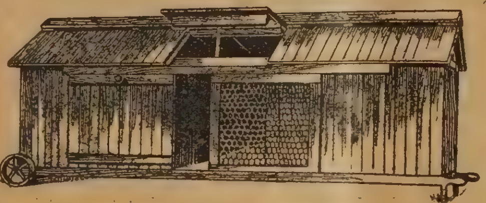
Do not purchase cheap foreign rings which are very flimsy and useless.

Flat Celluloid Bands in 10 plain and 10 to 15 Strips as follows:

	1000	500	400	300	150	100	50	25	12
No. 1.	18/9	10/-	8/6	6/6	3/9	2/9	1/6	10d.	6d.
No. 2.	22/6	12/-	10/-	8/-	4/6	3/3	1/9	1/-	8d.
No. 3.	24/-	13/-	11/9	9/6	5/-	3/6	2/-	1/3	10d.
No. 4.	33/-	17/-	14/6	11/-	6/-	4/6	2/6	1/6	1/-
No. 5.	36/-	19/-	16/-	12/6	6/6	5/-	2/9	1/8	1/1
No. 6.	37/6	20/-	17/-	13/-	7/-	5/3	3/-	1/9	1/2
No. 7.	42/-	22/-	18/-	14/-	7/6	5/9	3/3	1/11	1/4

10 per cent. reduction on lots of 10,000 and upwards.

The Hannaford Night Ark.



Now largely used for Cockerels, &c. being prepared for market,

No. 1, as illustrated. 9ft long. 2ft. 9in. wide.
„ 2 „ „ 6ft. „ „ „
„ 3 „ „ 5ft. „ 2ft. 6in. wide
„ 4 „ „ 4ft. „ „

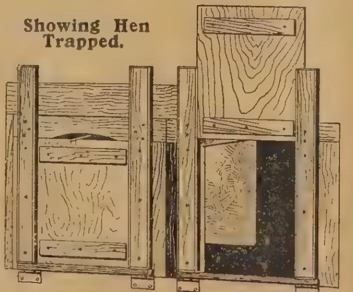
No. 1, to accommodate 50 to 60 ... £4 12 0
„ 2 „ „ 30 to 40 ... £3 14 0
„ 3 „ „ 25 to 30 ... £3 0 0
„ 4 „ „ 20 to 25 ... £2 10 0

2½ per cent. reduction if four are taken at one time.

Carriage paid.

C.A.S.H. TRAP FRONT.

Showing Hen Trapped.

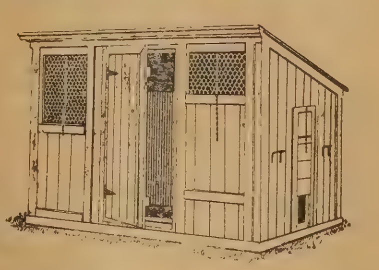


The right hand shows trap set ready.

Nothing to get out of order, and is very quiet in its action.

4/-, post free; 6 at 3/9 each; 12 at 3/6 each; 24 at 3/3 each; 50 at 3/- each; 100 at 2/6 each. All Carriage Paid.

Bargainette House



6ft. long, 4ft. wide, 4ft high, £2 17 6; Floor 12s.;

3 nests, 11s. 6d.; Creosoted, 5s.

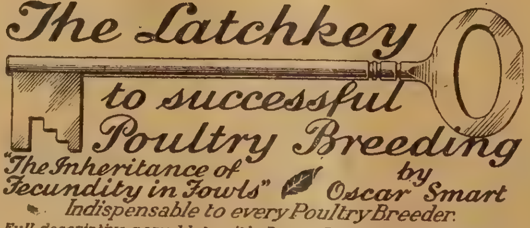
Carriage paid.

6 sent. carr. paid, £16 10 0.

Floor, etc., extra.

Special discount to Members S.P.B.A.; 5 per cent. extra carriage Channel Islands and beyond Firth of Forth, also to Ireland.

.A. SYDENHAM HANNAFORD, Late of Randolph Meech, **Hamworthy Junction, Dorset**


The Latchkey to successful Poultry Breeding

"The Inheritance of Fecundity in Fowls" by Oscar Smart

Indispensable to every Poultry Breeder.

Full descriptive pamphlet, with Press Reviews & Opinions of leading Breeders & Poultry Experts, post free from publishers City & South London Ptg & Pubg Co., 94 Farncombe St. London, S.E.16.

DRIED YEAST per cwt. **22/-**

Guaranteed Pure Unextracted!
Richest in "B" Vitamines! !
Richest in Proteins! ! ! ! !
The Healthiest Poultry Food Extant!

YESTOS Per cwt. **21/-**
("Ossified Yeast").

(Containing "A" and "B" Vitamines).

	Per cwt.
Dried Grains	**11/-**
Ground Malt Culms	**9/-**
Maize Meal	**15/-**
Barley Meal	**15/6**
Pig Meal	**14/-**
Complete Poultry Meal	**16/-**
Mixed Corn	**15/-**
Kibbled Maize	**16/-**
Sussex Ground Oats (Pure Oats. No admixture whatever.)	**16/6**
Chick Feed. No. 1	**19/-**
" " No. 2	**18/-**
Chicken Meal	**15/-**

All the above prices Carriage Paid to nearest station, England and Wales.

Guaranteed of the Best Ingredients. — A Trial Invited.

CASH WITH ORDER.

For orders of one ton and over, special price, free on rail, Burton-on-Trent.

5 per cent. discount allowed to Members of the S.P.B.A. if ordered through the Association. For Samples and further information apply to ;—

The English Grains Co., Ltd.,
Derby Road,
BURTON - ON - TRENT.

NITROPHOS Brand of

PURE WHITE FISH MEAL

Is Unsurpassed for Uniformity of Quality and Purity.

Two Grades. No. 1 Fine for Wet or Dry Mash, No. 2 Coarse for Distribution.

WHOLESALE AND RETAIL PRICES ON APPLICATION.

ANALYSIS:

Albuminoids ...	55%	min.
Phosphates of Lime	17%	min.
Oil...	4.5%	max.
Salt	4.0%	max.

The Good Fish Products Co., Ltd., (Dept. M.), 90, Freeman Street, Grimsby.

(MEMBERS OF THE FISH MEAL MANUFACTURERS' ASSOCIATION).

£10 10s. for Ten Minutes' Work.

We are constantly receiving orders for a **DRY POULTRY FEED MEAL** from various poultry breeders in different parts of the country, made up from their own particular recipe, and as it is rarely we receive two containing the same ingredients and quantities, we have, therefore, decided to give a prize of Ten Guineas for a recipe which we consider contains the best proportion and the most suitable ingredients for a food of this description, the list of same to be supplied by ourselves. The conditions are simple, and should commend themselves to everyone interested in Poultry Rearing, as each stands an equal chance of securing the prize. In the event of one or more replies being considered equal, the amount offered will be equally divided between them, the next 10 best will receive a 1 cwt. bag of the Meal free, and each applicant will receive a free 3 lb. sample.

Send for list and particulars of application to:—

NEWTH, GUYMER & CO., Ltd., Providence Wharf, College Street, London, S.E.1.

Only conditions are: Our decision to be final.

Leckhampton Poultry Grit.

THE IDEAL GRIT AT LAST.

This grit is a natural blend of Fish-Shell and Limestone—deposited by Nature in the form of a conglomerate rock.
Its Use Renders Purchase of Expensive Oyster, Cockle and other Shell Unnecessary.

Selected as the ONLY GRIT to be fed to Birds at the current

"DAILY MAIL" and NATIONAL LAYING COMPETITION.

PRICES:
F.O.R. BAGS FREE.

Poultry or Chick Size, Leckhampton Grit: 5s. 6d. per cwt.; £2 10s. 0d. per ½ ton; £4 4s. 0d. per ton.

Quarried and Prepared Solely by

Leckhampton Quarries Co., Ltd.,

CHELTENHAM, GLOUCESTERSHIRE.

REDUCTIONS.

	per cwt. s.	d.
Laying Meal, Mr. Newman's (extra strength)	13	6
No. 1 Hencorn	12	6
No. 2 Hencorn	12	3
Sussex Ground Oats	15	0
Best Meat Meal	20	0
Bone and Meat Meal	16	6
Pure Dried Yeast (Unextracted) ...	21	0
Palmer's Fish Meal	22	0
Oyster Shell	7	0
No. 1 Chick Food (Newman's Formula)	20	0
No. 2 Chick Food	19	0
Clipped English Oats	12	6
Cracked Sieved Round Corn	12	6

Free on Rail, or ex Warehouse. Stone. Bags Included.

Satisfaction Guaranteed.

Terms: Cash with Order.

We Quote for Your Own Mixture if required

STUBBS & CO. (Corn Merchants and Millers), Ltd., (Dept. E.) M.S.P.B.A.

STONE—STAFFS

Lt.-Col. H. M. DRAKE,

M.S.P.B.A.,

Breeder of High-Grade Utility
WHITE LEGHORNS.
WHITE WYANDOTTES.
RHODE ISLAND REDS.

All Birds Trap-nested.

Eggs for Hatching from 6/6 carr. pd.
Day-old Chicks from 13/6 carr. pd.

Full particulars on application.

Winswood Crediton, DEVON

Economy in the Quality of Oats is a False Saving.

——— Poultry Farm, Nr. Stockport.
May 26, 1924.

Dear Sirs,—Will you repeat my last order for Sussex Ground Oats. They have given me every satisfaction, and I am more than pleased with the results obtained.

I have used other brands of Sussex Ground Oats, but your "Welco" brand I have found superior and more consistent in quality. Truly yours,

——— (M.S.P.B.A.)

"WELCO" OATS are specially imported for the purpose. Our last shipment weighed 49 lbs. to the Bushel, a sample impossible to produce except in an ideal climate.

PRICE:

"Welco" Oats, 14/6 per cwt.; carriage paid 4 cwt. lots. "Welco" Sussex Ground Oats, 14/6 per 7 stones; carriage paid on 4 cwt. lots. 1 cwt. lots 9d. per cwt. extra.
Cash with Order. In 7 stone bags.

Welco REGD

W. LOOSE & CO.,
Stockport Corn Mills, STOCKPORT.

AUSTRALORPS FARMS, Ltd.

Importers Breeders and Exporters of World's Record Layers,

AUSTRALORPS.

Directly imported Hens from own Breeding Pens for Sale, from 17/6.

Sittings & Day-Olds Half Price.

STREET COURT, KINGSLAND, HEREFORDSHIRE.

"EASTFIELDS PEDIGREE" RHODE ISLAND REDS AND WHITE LEGHORNS.

For Eggs, Colour, Refined Type and Sustained Productiveness.
Absolutely First Class.
Individually Pedigree Bred and Recorded.

ALDERSON SMITH,
Braunston, Northants

CO-OPERATION!

BEANMEAL, SOYA (extracted).
CHARCOAL, Granulated.
Do. Fine.
DARI, White, recleaned.
Dry Chick Feeds, 3 sizes.
DRIED SEPARATED MILK.
DOG FOODS.
Green Clover Meal.
FISH MEAL, White (5 per cent. cod liver oil).
Ditto. ditto. will keep for years.
GROATS, whole or cut.
GROUND OATS, Pure Sussex ground.
GROWING MASH (10 per cent. dried milk).
LAYING MEALS for all conditions.
MILLET MEAL.
PEAT MOSS LITTER, granulated.
Stakes for Fencing, 8 feet.
SALTS for Body-Building.
YEAST, Dried, unextracted.
And All Usual Foodstuffs.

Tell us what you want, how much (in all) you can take at a time, your nearest Goods Station, and we will quote you a carriage paid price.

STEYNE FOODS,
LTD.,
STEYNING,
SUSSEX.

Mrs. Alec Wilson

Stands First at Harper-Adams with

Utility White Wyandottes.

1923 Sisters of this pen for sale at

10/- 12/6 and 15/- each.

See my Birds at the N.U.P.S. House at WEMBLEY (just past Old London Bridge),

Or send for Free Catalogue to:—

GARTH WYANDOTTE FARM
GARTH, BRECONSHIRE.

He Prospers Most

Mr. Poultry-Keeper: My White Wyandottes and White Leghorns are unbeatable as layers of large eggs, and plenty of them. This has undoubtedly been proved by my continued successes in the American and English contests.

TOM BARRON'S,

Catforth Poultry Farm, near Preston.

I am now offering eight to twelve weeks' old COCKERELS from High Pedigree Record Hens, 250 2¼oz. eggs each bird in year. Sire's dam 278 x 282 x 314. Now is the time to procure these Cockerels cheap for next season's mating. They will double in price as the season advances.
Prices: 10/6, 15/6, 21/- each.
EGGS, 10/6 per 15. £3 per 100.
Send 1½d. stamp for fully Illustrated Catalogue and List.

Who Serves Best.

DOWELL'S

POULTRY RINGS.

Sizes 4, 5, 6, 7.
Celluloid "SPIRALS," extra strong quality, in 10 Brilliant Colours. Prices: 300, 9/6; 150, 5/-; 100, 3/6; 50, 2/-; 25, 1/3. Chick Ring. Prices as listed.
"Flat Bands" in 20 Colours, including ten Striped Colours. Prices: 150, 5/6; 100, 4/-; 50, 2/3; 25, 1/3.

Aluminium Embossed

Numbered Rings. Adjustable or not. Prices: 150, 4/6; 100, 3/-; 50 ,1/9; 25, 1/-. With date also, 3d. per 150 extra. Illustrated Lists of all Rings and Appliances free. Special to the Trade. Factors, etc., send for samples, etc. Big discounts. "THE OLD FIRM."

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Specialist Breeder of
WHITE WYANDOTTES, WHITE LEGHORNS and PEDIGREE MIDDLE WHITE PIGS.

CAN SPARE
A LARGE NUMBER OF WHITE LEGHORN

THREE-MONTHS-OLD

PULLETS

PRICES FROM 10/- Each: £5 17s. Per Doz.
Further Reduction on Quantity.

1923 PULLETS: 6/-, 7/-, 8/- Each.

SEND FOR MY MATING LIST TO:—
J. PRIDHAM (*Manager*),
STOKECOURT, TAUNTON.

E. LESLIE PATTISON

Weston Coyney Hall, Longton, Staffs.

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The error arose through my misreading a letter from one of my clients, and I have written expressing my regret to the Rev. G. F. Sharp, who, as stated, has the honour of owning the birds which lead every breed at Stapleford.

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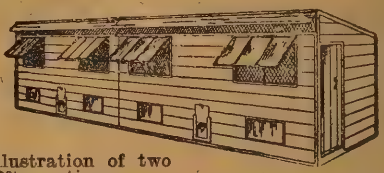

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19	15	10	8	5½	22 10 0	3 0 0	4 0 0	29 10 0
38	20	10	8	5½	25 10 0	3 18 0	6 10 0	35 18 0
39	30	10	8	5½	35 0 0	5 10 0	11 15 0	52 5 0
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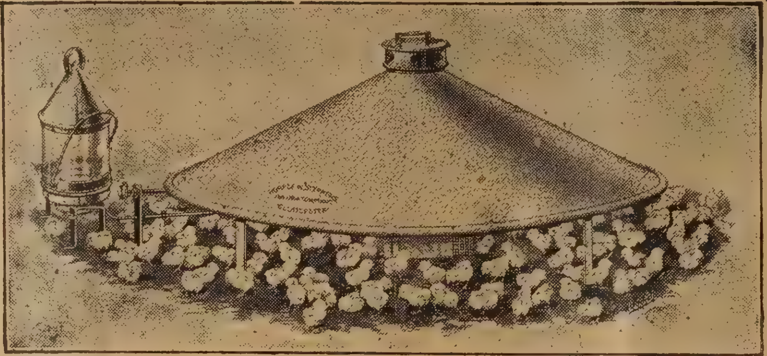

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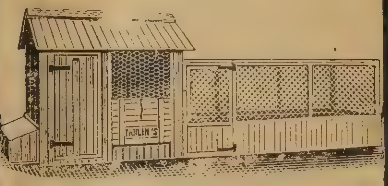

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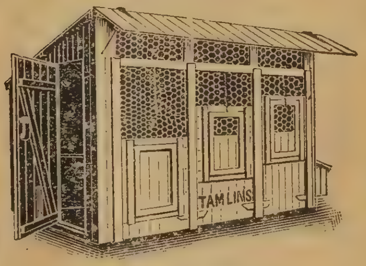

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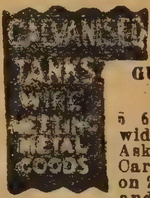

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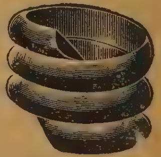

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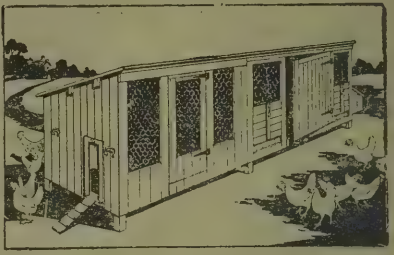

Made of best ⅝in. planed, V-jointed, tongued and grooved red deal boards, and provided with good press-lock, strong hinges, 1in. wire netting front, strong perches.

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The "EXCELSIOR" is for semi-intensive work or for use in the breeding pen. Is one of the very best houses obtainable.

No. 1 is 9ft long, 5ft. wide, 5ft. 6in. high. It has two glass windows.

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It is made of ¾in. tongued and grooved Best Red Deal Boards.

PRICE—No. 1, £7 8s. 0d. Floor 26/6 extra.
No. 2, £9 15s. 6d. Floor 39/- extra.

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The "MEADOW."

Made of ¾in, red deal boards and red deal framing. The boards are tongued and grooved. Lock and key, nest-boxes, 15in. steel wheels, 3in. wide.

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No. 2 is 6ft. long, 4ft. wide, 6ft. 6in. high.
No. 3 is 7ft. 6in. long, 5ft. wide, 7ft. high.
No. 4 is 9ft. long, 6ft. wide, 7ft. 5in. high.

PRICES:
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No. 2, £7 4s. 0d. No. 4, £11 19s. 6d.

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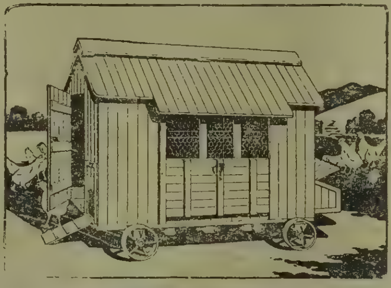
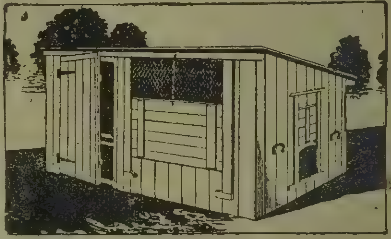


The "DREADNOUGHT"

POULTRY HOUSE.



Made of best ⅝in. Red Deal Boards, V-jointed, tongued and grooved. Strong door, hung with stout hinges and fitted with press lock and key. Up-and-down sliding shutter, suspended on a strong chain. Handles for lifting. Two strong perches. Everything necessary for erecting. Sent out in sections ready for putting up.

Size: 6ft. long, 4ft. wide, 4ft. high.

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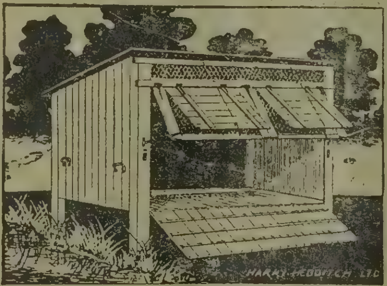
Three for £6 13s. 6d. Six for £13 2s. 6d. Twelve for £26. Floors, 13/- each extra.

Carriage paid in England and Wales. If immersed in Preserolium (pickled) the cost is 1/- in the £ extra. Prompt despatch.

The "ATHELNEY"

DUCK HOUSE.



It will be noticed by referring to the illustration that the bottom half of the front drops down and the top half lifts up. Thus the bedding can be exposed to the drying influence of the air. The bottom half is made in two portions. The ducks can also be handled without the attendant going inside the house.

Size—6ft. long, 4ft. wide, 4ft. 9ins. from ground. **Price £4 0s. 0d.**

Made of best ⅝in. red deal, tongued, grooved and V-jointed.

Carriage paid England and Wales.

Prompt despatch. If immersed in Preserolium (pickled) the cost is 1s. in the £ extra.

The 'DELTA' Non-Clog Dry Mash HOPPER. Rat proof.

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No. 3—18 ,, 18 ,,
No. 4—18 ,, 36 ,,

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No. 2, 10/-, 3 for 28/9, 6 for 55/3, 12 for 102/6.
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